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2021/2022 ANNUAL AFFORDABILITY REPORT

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California Public
Utilities Commission

2021/2022 Annual Affordability Report

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Executive Summary

This 2021/2022 Annual Affordability Report (2021/2022 Report) presents the current state of affordability in California as measured by the metrics adopted in the California Public Utilities Commission's (CPUC) Affordability Rulemaking (R.)18-07-006 proceeding. Using the most recently available data, this analysis reflects historical results for electricity, natural gas, water, and communications¹ essential service² affordability for the year 2022, as well as forecasted electric affordability results through the year 2026.³ Because this year's report includes an updated methodology that allows for more up-to-date analysis of historical years, affordability metric results were prepared for years 2021 and 2022, though this report focuses primarily on the outcomes for 2022. The results for 2021 are available for reference in the appendix.

The CPUC's mission is to ensure that California investor-owned utility (IOU) customers receive safe, reliable, affordable and clean utility service at just and reasonable rates.⁴ Since 2018 the CPUC has been directly addressing concerns about affordability and rising rates through our Affordability Rulemaking.⁵ In 2021, the CPUC held the first Affordability En Banc hearing to sharpen attention on a broad assortment of affordability issues and potential solutions.⁶ Then, in 2022, the CPUC held another Affordability En Banc hearing to deepen our review of stakeholder proposals and introduce new potential options to mitigate energy rate and bill increases.⁷ At an En Banc in 2023, the CPUC and stakeholders discussed high natural gas wholesale prices that occurred this past winter, examined impacts on electric markets and explored potential measures to mitigate the impact of natural gas and electric market volatility.⁸

The following sections reflect the current state of affordability in California as measured by our established affordability metrics and their inputs and metric projections over the next few years.

Utility Customers Continue to Face Financial Pressure When Paying Utility Bills

The 2022 historical affordability analysis produced similar results to what was observed in prior Affordability Reports. The primary metric used in this evaluation is the **Affordability Ratio (AR)**: a measure of the percent of income, net of housing costs and other essential bills, that is needed to pay for an essential service. Higher AR values correspond to less affordable service. The maps in Figure ES-1 show for CPUC-jurisdictional areas⁹ a wide range of Affordability Ratio (AR) values for households at the

¹ The CPUC sets rates for the electric, natural gas, and water utilities under its jurisdiction. The CPUC does not set rates for communications providers or municipal providers of electricity, gas, or water service.

² Decision (D.) 20-07-032 adopts the term essential service to represent the minimum amount of utility service necessary for household consumption.

³ Forecasted values for electricity affordability metrics reflect forecasted cumulative year-end rates based on revenue requirement projections embedded in the most recently available Cost and Rate Tracker (CRT) for each IOU, as modified by Energy Division staff. These forecasted cumulative year-end rates are also available as part of the [2023 SB 695 Report](#) (Table 17). All other inputs for the forecasted metric calculations were developed by assuming inflation-based escalation.

⁴ See CPUC website [About the CPUC](#).

⁵ See [Order Instituting Rulemaking \(R.\)18-07-006](#).

⁶ See [February 24, 2021 En Banc hearing webcast](#).

⁷ See [February 28, 2022 En Banc hearing webcast](#) and [March 1, 2022 En Banc hearing webcast](#).

⁸ See [February 7, 2023 En Banc hearing webcast](#).

⁹ The areas presented in ES-1 are CPUC-jurisdictional for electricity, natural gas, and water services. Communications services include broadband data, which are not regulated by the CPUC.

20th percentile of the local income distribution (referred to as the AR₂₀) for all four essential services---electricity, gas, water, and communications---illustrating that affordability varies widely across different parts of California, even for households at a common point of the income distribution.

Many parts of the Central Valley continue to reflect high AR values (areas represented by the warmer colors yellow/orange/red in the maps below), indicating that essential services are relatively expensive for low-income households in these areas once budgets are adjusted to reflect housing costs. Additionally, select areas in Los Angeles, the San Francisco Bay Area, San Diego, and Northern California also display high AR values. This trend is mirrored in the **CalEnviroScreen (CES) scores** and **Hours at Minimum Wage (HM)** affordability metric values for each of the four essential services, as described in more detail later in this report.

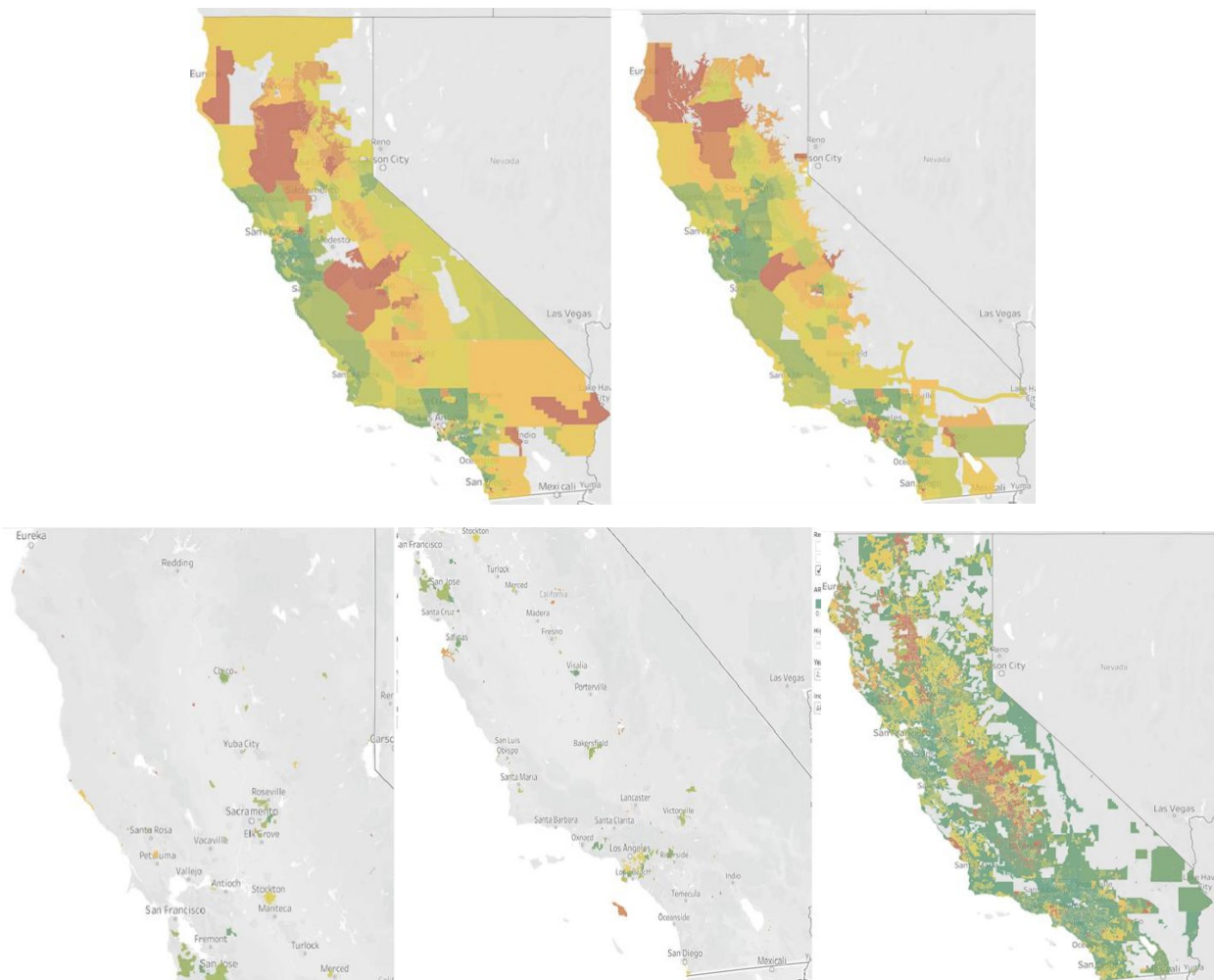


Figure ES-1: AR₂₀ Values for CPUC-Jurisdictional Energy and Water Areas, as well as Communications Areas (2022), shown left-to-right: Electricity and Gas by PUMA¹⁰ (first row), Northern California Water, Southern California Water, and Communications (second row)

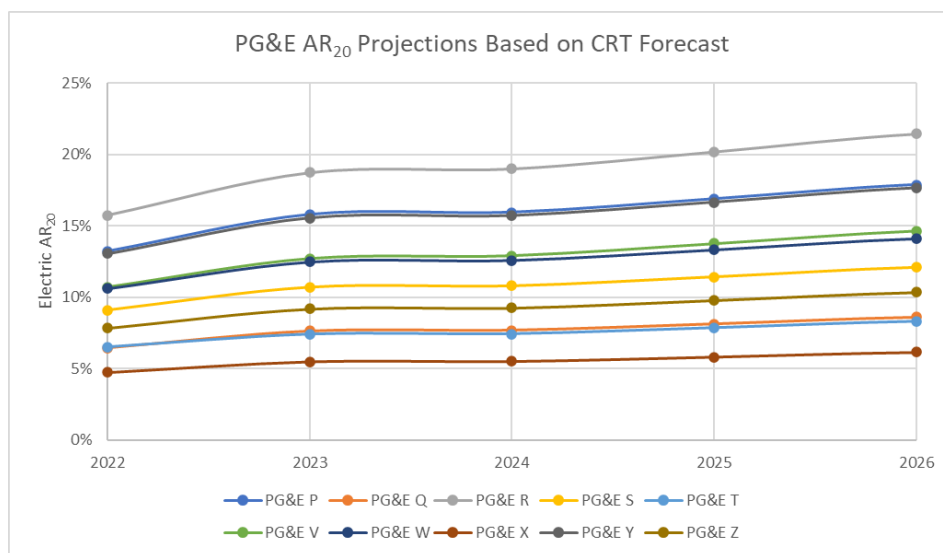
¹⁰ PUMAs, or Public Use Microdata Areas, are “non-overlapping, statistical geographic areas that partition each state or equivalent entity into geographic areas containing no fewer than 100,000 people each.” There are currently 265 PUMAs in the state of California. By looking at a common income percentile across the different PUMAs in California, the AR metric

Income, more than housing costs, continues to drive whether essential utility services are affordable. The 2022 Report includes an update to the affordability analysis for each of the four essential services individually that was presented in prior Affordability Reports. This year's analysis shows similar patterns in terms of where affordability challenges are most severe. Overall, affordability concerns are greatest in areas where income levels are relatively low, even when accounting for lower housing costs.

Essential Electricity Service is Projected to Grow Less Affordable for Vulnerable Californians, Particularly in Hotter Regions

Figure ES-2 below shows the projected AR₂₀ values through year 2026 for each electric climate zone of the three large electric IOUs. Higher AR values correspond to utility bills that are less affordable, meaning in this case that utility bills are expected to be less affordable by 2026 according to this metric, largely driven by forecasted increases in electricity rates that are expected to outpace inflation. This trend of increasing unaffordability is expected to be particularly acute in PG&E climate zone R, a hotter region that includes Merced and Fresno.

The weighted average electric AR₂₀ value for this climate zone is expected to incrementally grow from 15.7 percent to 21.4 percent, a 5.7 percentage point increase, between 2022 and 2026. Similarly, in SCE climate zone 15, which is one of the hottest and least affordable regions that lies along the California border with Nevada and Arizona, AR₂₀ is expected to increase by 5.8 percentage points (from 17.6 percent to 23.4 percent) between 2022 and 2026. Consequently, it is critical to note that the projected increase in AR₂₀ for all IOUs across all climate zones by 2026 indicates that expected increases in essential usage bills (EUB) for electricity will likely outpace increases in household incomes once housing costs and other EUBs are taken into account.



characterizes the relative wealth of each PUMA to the others. More information on PUMAs can be found on the Census Bureau's website: <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/pumas.html>

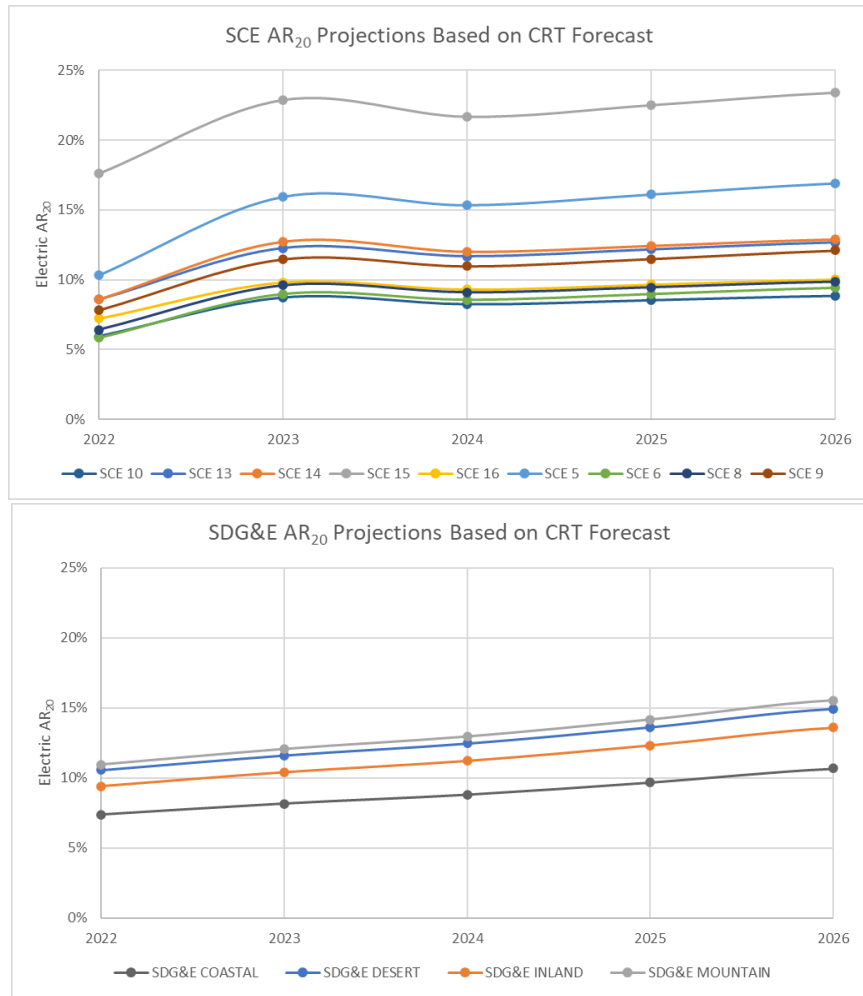


Figure ES-2: Forecasted AR₂₀ Values by Electricity Climate Zone for the Three Large IOUs

Industry-Specific Observations

An analysis of the 2022 affordability metric results yielded several industry-specific observations:

- **Electricity:**
 - Forecasted analysis indicates that electric bills started becoming much less affordable in 2022 and will continue on that trend until at least 2026, driven by forecasted increases in electricity rates.
 - The most serious affordability concerns continue to be in particularly low-income parts of major metropolitan areas, as well as in the Central Valley.
- **Natural Gas:**
 - Increases in natural gas rates over the past year has led to an overall decrease in natural gas affordability.
 - Relative affordability across different parts of the state continue to show patterns observed in prior Affordability Reports. The highest natural gas AR₂₀ results were

observed in low-income regions, particularly in northern parts of the state heating needs drive higher essential usage levels for natural gas.

- **Water:**
 - There was no significant change in water affordability compared to prior years' analyses.
 - Similar to the 2020 report, small CPUC-regulated systems have the highest AR₂₀ and HM results. This is due to the systems' locations in rural areas with high costs of service resulting in high water rates and consisting of low 20th percentile incomes.
- **Communications:**
 - Communications industry AR₂₀ values continue to show a very wide range of affordability outcomes across the state. The multitude of combinations of lowest cost voice and data providers makes it difficult to summarize affordability results without studying the issue at a geographically granular level.
 - Select census tracts across the state still contain communities that face affordability challenges due to low income, high cost of service, or both.

Based on the 2022 AR results for each industry, the 2022 Report maintains the affordability demarcations that were established in prior reports. Using these demarcations, **Areas of Affordability Concern** are identified for each industry in Figure ES-3 and overlaid with the California Environmental Protection Agency's (CalEPA) most recent definition of **disadvantaged communities (DACs)**.

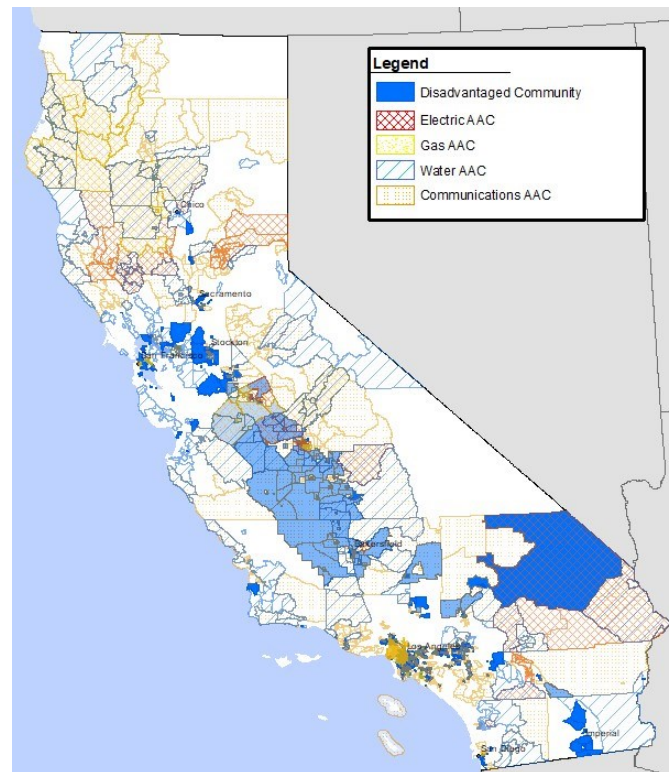


Figure ES-3: Disadvantaged Communities Overlaid with Areas of Affordability Concern

CARE and CAP Programs Improve Affordability in Most Vulnerable Areas

Staff also analyzed key assistance programs and their impact on affordability for low-income families. Specifically, this report looks at the impact of the California Alternate Rates for Energy (CARE) program for electricity and natural gas, the Customer Assistance Program (CAP) for water, and the Family Electric Rate Assistance (FERA) program for electricity on utility affordability in California.

The analysis shows that the CARE and CAP programs (which have the same income eligibility requirements) provide a sizable improvement in utility affordability in the most vulnerable areas. The drop in AR value is larger in the areas where essential services are relatively unaffordable, showing that the CARE program is generally more effective where electric and natural gas affordability concerns are most serious, since this is where the 30-35 percent discount represents the biggest proportion of a household's budget after taking into account non-discretionary expenses, such as housing costs. However, there are several electric and gas climate zones and PUMAs for which high AR₂₀ values persist even with the CARE/CAP-reduced EUBs, indicating that customer affordability issues in these areas may be particularly acute, regardless of whether they receive low-income program relief.¹¹

Alongside the AR impacts of the CARE, CAP, and FERA programs, this report provides a summary of CARE and FERA enrollment rates¹² in order to provide a sense for whether there is an opportunity to improve utility affordability through expanded outreach to customers eligible for, but not yet enrolled in, these assistance programs. While the official CARE reports for 2022 indicated very high enrollment rates across all four of the large electric and natural gas IOUs, the IOU-provided geographically granular estimates of CARE enrollment suggest that there is an opportunity to refine the IOUs' methodology for identifying who is eligible for CARE through targeted outreach.

IOU Affordability Metrics Filings Can Highlight Impact Data for the Most Disadvantaged Customers

The CPUC and stakeholders have had the opportunity to review at least a dozen applications corresponding to energy and water utility proceedings for which affordability metrics were reported in compliance with the Phase 2 decision of the Affordability Rulemaking proceeding.¹³ The presentation format in Table ES-1 highlights affordability metrics impact data for a utility's most disadvantaged customers.¹⁴ For example, the AR₂₀ impacts for customers enrolled in CARE are in the range of 0.1 percent to 0.4 percent, and for those not enrolled in CARE, in the range of 0.2 percent to 0.6 percent.¹⁵

¹¹ CARE provides a discount of 30-35 percent on electric bills and a 20 percent discount on natural gas, while FERA only offers an 18 percent discount on electric bills. The CAP program offers discounts to low-income customers on their water bills, and its income thresholds are aligned with the CARE program.

¹² Enrollment rate refers to the percent of eligible customers enrolled in the program.

¹³ See [D.22-08-023](#).

¹⁴ See [D.23-06-004](#), the Decision in PG&E's 2022 WMCE Interim Rate Relief Application proceeding, page 21. Similar data is available for reference for the other large IOUs in Chapter 5, Table 18.

¹⁵ Additional analysis at the climate zone subdivided by PUMA level (AAC) shows this household budgetary effect to range from 0.5 percent to 1.3 percent.

PG&E Proposal	Incremental Change in Affordability Ratio for 20 th Percentile Households (AR ₂₀)		Incremental Change in Time for Households Earning Minimum Wage (HM)		Incremental Change in AR ₂₀ in Areas of Affordability Concern (Portions of Butte, Fresno, Kern, San Joaquin Counties)	
	CARE	Non-CARE	CARE	Non-CARE	CARE	Non-CARE
Lowest - Highest Affordability Impact by Climate Zone	0.1% – 0.4%	0.2% – 0.6%	0.2 – 0.3 hours or 12 - 18 minutes	0.2 – 0.4 hours or 12 – 24 minutes	0.5% - 0.9%	0.8% - 1.3%

Table ES-1: Most Disadvantaged Customers Affordability Impacts Over GRC Cycle

This means that the proposed revenue request corresponding to the data in Table ES-1¹⁶ would take an additional bite out of these customers’ household budgets at anywhere from 0.1 percent to 0.6 percent, depending on whether the customer is enrolled in CARE.¹⁷ For households earning minimum wage, the electric essential use bill increase equates to an additional 12 – 24 minutes of work per month. Staff recommends in future filings that data be distilled into a summary presentation such as that shown in Table ES-1 to provide an extra lens for the most disadvantaged residential customers: those at the lower end (20th percentile) of the income distribution, those earning minimum wage, and those in areas facing grave economic challenges.

¹⁶ See A. 22-12-009, PG&E’s 2022 WMCE Interim Rate Relief Application.

¹⁷ For customers in Areas of Affordability Concern, the proposed revenue request would take an additional bite out budgets of between 0.5 percent to 1.3 percent.

1. Introduction

This report presents the current state of affordability in California as measured by the metrics adopted in the CPUC's Affordability Rulemaking (R.)18-07-006 proceeding. Using the most recently available data, this analysis reflects historical results for electricity, natural gas, water, and communications¹⁸ essential service¹⁹ affordability for the years 2021 and 2022, as well as forecasted affordability results for electricity through the year 2026.²⁰ This year's affordability analysis makes several adjustments to methodology in response to party feedback on prior reports. Most significantly, this year's Annual Affordability Report (the 2021/2022 Report) uses the most recently available essential usage billing data to produce historical affordability metric values for the year 2022 in addition to 2021, whereas the prior affordability report only included historical values for the year 2020. The goal is to produce more up to date estimates of affordability based on historical analysis. Going forward, future affordability reports will feature historical affordability analysis for the prior year (i.e., next year's report will assess the historical affordability of essential services as of 2023) rather than featuring a two-year lag.

The 2021/2022 Report also includes an analysis of key assistance programs and their impact on affordability for low-income families. Specifically, this report looks at the impact of the California Alternate Rates for Energy (CARE) and Family Electric Rate Assistance (FERA) programs on electricity and natural gas affordability, as well as the Customer Assistance Program (CAP) on water affordability.

Alongside the report itself, CPUC staff provides updated tools so that interested parties can assess the affordability impact of proposals that are under consideration. An updated Affordability Ratio Calculator (AR Calculator), which was used to develop much of the analysis presented in this report, is available through the CPUC's website.²¹ Staff also provides detailed tables with affordability results at geographically granular levels for the various essential services, as well as lists of census tracts that are located in vulnerable communities, in the appendix files of this report which have been posted to the CPUC Website.²²

¹⁸ The CPUC sets rates for the electric, natural gas, and water utilities under its jurisdiction, but does not set rates for communications providers or municipally-owned providers of electricity, gas, or water service.

¹⁹ Decision (D.) 20-07-032 adopts the term essential service to represent the minimum amount of utility service necessary for household consumption.

²⁰ Forecasted values for electricity affordability metrics reflect forecasted cumulative year-end rates based on revenue requirement projections embedded in the most recently available Cost and Rate Tracker (CRT) for each IOU, as modified by Energy Division staff. These forecasted cumulative year-end rates are also available as part of the [2023 Senate Bill \(SB\) 695 Report](#) (Table 18). All other inputs for the forecasted metric calculations were developed by assuming inflation-based escalation.

²¹ 2021 and 2022 AR Calculators: 2021 ARC (https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/arc_2021_final.xlsm); 2022 ARC (https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/arc_2022_final.xlsm). Note that these are large files. It is highly recommended that you save them to your hard drive (right-click and save) and open from there.

²² Appendix files can be found at the bottom of the 2021 and 2022 Annual Affordability Refresh page: <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/affordability/2021-and-2022-annual-affordability-refresh>

a. Background on Metrics and Definitions of Vulnerable Communities

The analysis presented in this report relies on the metrics that were adopted in the Phase 1 Decision of the Affordability Rulemaking proceeding²³ (the Phase 1 Decision), with the exception of a change in the metric used to measure vulnerability at the community level. Relevant information on the metrics is provided here, but for additional details on the definitions of and calculation methodologies for these metrics, please refer to the Phase 1 Decision.

The **Affordability Ratio (AR) metric** quantifies the percent of a household's income used to pay for an essential utility service after non-discretionary expenses, such as housing and other essential utility services, are removed from the household's income. The higher an AR, the less affordable the utility service. AR may be calculated for any income level in a given area, with AR₂₀ (the AR for a household at the 20th percentile income level) and AR₅₀ (the AR for a household at the 50th percentile of income) chosen by staff as the standard representations.²⁴ The AR metric is calculated for a representative household at a given point in the income distribution for a geographic area known as a Public Use Microdata Area (PUMA).²⁵ This distribution of incomes is particular to each PUMA and is measured in the Census Bureau's American Community Survey (ACS). The AR metric is sensitive to geographic variations in cost-of-living, which can impact the amount of income available to pay for essential utility services. This metric can show the affordability for specific essential services by industry (in which case the other essential services are treated as non-discretionary expenses and deducted from the household's gross income), or can be used to measure the affordability for all four essential services combined, which is referred to as the bundled AR.

The **Hours at Minimum Wage (HM) metric** allows stakeholders to conceive of essential utility bills in terms of something most people can relate to – hours of labor. The use of minimum wage in the HM metric accounts for the lowest wages legally available in a given location, and as a result implicitly considers the impact of utility bills on lower-income customers regardless of the affluence of the community as a whole.

The **Socioeconomic Vulnerability Index (SEVI) metric** allows for an affordability assessment that is independent of essential utility service charges. The SEVI metric describes the relative socioeconomic characteristics of census tracts, referred to as communities, in terms of poverty, unemployment, educational attainment, linguistic isolation, and percent of income spent on housing.²⁶ The goal of the SEVI metric in this context is to highlight those communities where uniform changes in rates may have a disproportionate impact on affordability. Thus, the SEVI metric allows for an affordability assessment that is independent of the absolute value of essential utility service charges.

²³ See [D.20-07-032](#).

²⁴ The 20th percentile was selected because it represents households that are low-income but may not necessarily qualify for an assistance program such as California Alternate Rates for Energy (CARE).

²⁵ PUMAs are "non-overlapping, statistical geographic areas that partition each state or equivalent entity into geographic areas containing no fewer than 100,000 people each." There are currently 265 PUMAs in the state of California. By looking at a common income percentile across the different PUMAs in California, the AR metric characterizes the relative wealth of each PUMA to the others. More information on PUMAs can be found on the Census Bureau's website: <https://www.census.gov/programs-surveys/geography/guidance/geo-areas/pumas.html>

²⁶ The socioeconomic indicators are those used by the California Office of Environmental Health Hazard Assessment in developing its CalEnviroScreen (CES) score.

While D.20-07-032 adopted SEVI as the third metric, this report will instead focus on a similar metric produced by California Office of Environmental Health Hazard Assessment (OEHHA) called **CalEnviroScreen (CES)**.²⁷ The SEVI metric is actually derived from CES by using the socioeconomic-specific components used to calculate CES scores (poverty, unemployment, educational attainment, linguistic isolation, and percent of income spent on housing) to generate a similar index. Consistent with the reasoning presented in the Phase 2 Decision of the Affordability Rulemaking proceeding (Phase 2 Decision),²⁸ CES results will be presented in this report because it provides a more comprehensive analysis of how vulnerable a community is to utility bill increases. Moreover, the CES is an established metric that is already widely used and understood.

In addition to using these metrics, this report uses two definitions of vulnerable communities to identify where affordability concerns are particularly severe: **areas of affordability concern (AAC) and disadvantaged communities (DAC)**. The former was developed in the Affordability proceeding Phase 2 implementation staff proposal²⁹ to give context to the AR metric and to identify specific areas in California where lower-income households have particular difficulty affording each essential service compared to the rest of the state. The latter is a definition of vulnerable community developed by CalEPA and is primarily based on CES scores.

Until recently, DACs were identified based on CalEPA's CES 3.0. This version of CES designated DACs as census tracts with the highest 25 percent of CES scores and tracts with missing population characteristics data that are in the top 5 percent of pollution burden score. On May 3, 2022, CalEPA released CES 4.0 with an updated definition, which includes: 1) census tracts with the highest 25 percent of CES 4.0 scores and tracts that are missing population characteristics data, but in the top 5 percent of pollution burden score; 2) census tracts identified as a DAC in CES 3.0; and 3) all lands under the control of federally recognized Tribes in California.

AACs are census tracts that lie in geographic areas where AR₂₀ values are greater than the affordability demarcation for a particular essential service. The affordability demarcations are defined as the point of inflection in each industry's AR₂₀ distribution of values, based on the observed data in the most recently available Affordability Report.³⁰ The inflection point represents the point in the distribution of AR₂₀ values that serves as a boundary of sorts: a small percentage of households are located in areas where the AR₂₀ is significantly higher than the inflection point (i.e., the area to the left of the inflection point on the distribution plot) while the majority of households are located in areas where the AR₂₀ is below the inflection point (i.e., the area to the right of the inflection point). This inflection point is determined by visual inspection.

As an example, the distribution of electric AR₂₀ values for the years 2019 and 2020 is presented in Figure 1. This graph shows that, for both historical years, the majority of households in the state were located in areas where AR₂₀ values are relatively low. However, there are a number of households located in areas where the affordability ratio for families at the 20th percentile of the income distribution is

²⁷ CalEPA CalEnviroScreen website: <https://oehha.ca.gov/calenviroscreen>.

²⁸ See [D.22-08-023](#).

²⁹ See [R.18-07-006 Affordability Metrics Implementation Staff Proposal issued November 5, 2021](#) (Implementation Staff Proposal).

³⁰ For the electricity, gas, and water demarcations, inflection points were identified based on the distribution of AR₂₀ results in CPUC-jurisdictional service territories only.

significantly higher than the rest of the state. This inflection in the graph for both years is at around an electric AR₂₀ value of 15 percent, which was determined by CPUC staff to be the affordability demarcation for electricity.

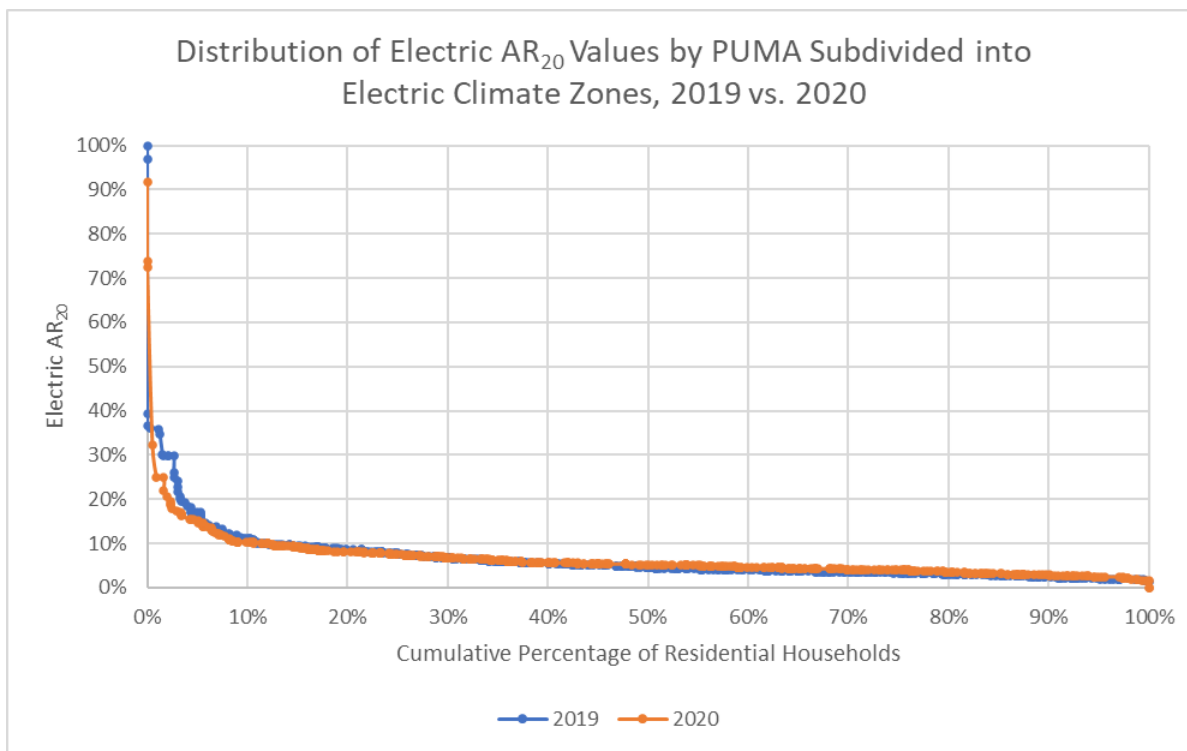


Figure 1: Distribution of Electric AR₂₀ Values by Percent of Residential Households (2019 and 2020)

Similar affordability demarcations were presented in the 2020 Report for the other industries. These affordability demarcations, which are based on the inflection point of each industry’s distribution of AR₂₀ values, are shown in Table 1. These inflection points represent the minimum AR₂₀ values for areas where affordability concerns are more severe than most of the rest of the state. In other words, when the AR₂₀ for a given industry in a given area is above the demarcation value, affordability concerns for that area are more serious than they are for most of the rest of the state.

The next chapter of this report compares the 2022 distribution of AR₂₀ values for each industry to the 2020 distribution of values to assess whether any changes in the affordability demarcations are justified.

Industry	Inflection Point %
Electric	15%
Gas	10%
Water	10%
Communications	15%

Table 1: Affordability Demarcations – AR₂₀ Distribution Inflection Points by Industry (2020)

b. Updates to Affordability Analysis

This year’s affordability analysis featured a few methodology and tool updates in response to party feedback. The most significant change, as discussed previously, is the acceleration of the historical year analysis to reduce the lag between analysis period and report date. In addition, some elements of the

AR Calculator were updated to reflect a data error that affected housing unit counts for natural gas utilities, as well as a simplified presentation of the outputs of the tool to reduce the number of reported areas with very few housing units.

i. Accelerated Historical Year Analysis

Whereas prior affordability reports featured historical analysis with a two-year lag, this year's report uses more up to date electricity, natural gas, and Class A water utility essential usage data to provide a more recent assessment of the affordability of essential services. The remaining input data used to calculate the affordability metrics (household income and housing costs, communication essential usage bills, and the remaining water essential usage bills) were adjusted from 2021 values by using inflation factors to estimate their 2022 values. This allows for the estimation of the AR and HM metrics with a one-year lag, rather than a two year lag. The appendix files of this report include the affordability results for 2021, but the report itself focuses on the more recent affordability metric values for the year 2022.

ii. AR Calculator Updates

This year's analysis also features a few changes to the AR Calculator tool in response to party comments. Draft versions of the 2021 and 2022 AR Calculator tools were made available to parties in February 2023 and parties were asked to identify any data errors or methodological issues with the AR calculations prior to finalization and dissemination of the tool to the public. Many of the comments provided by parties were suggestions for generally modifying the measurement and reporting of affordability, such as the inclusion of bill and affordability metric values at different geographic scales and accounting for upcoming updates to PUMA boundaries based on the most recent decennial Census. Incorporating these changes into the AR Calculator and the Annual Affordability Report will require further consideration and could not be implemented in this iteration of the analysis.

Some parties identified specific issues with the AR Calculators' analysis, which have been addressed in the final 2021 and 2022 AR Calculators. SDG&E and SoCalGas identified that the housing unit counts reported in the natural gas output tabs of the AR Calculators were incorrect. Staff identified that this was because the tool was not properly accounting for all-electric customers in the natural gas utilities' service territories. This has been corrected. Several parties also identified that the output tabs of the AR Calculators included PUMAs for some essential service providers that are not actually in their service territories. This issue was a byproduct of the geographic information system (GIS) mapping process that is used to overlay PUMA and service territory boundaries. Specifically, some PUMAs that are near a given service territory boundary were estimated to have a small number of households in the intersection between the PUMA and service territory, even though those areas either did not actually overlap (the boundaries are not perfectly accurate at such granular scales) or the overlapping areas were unpopulated (the housing unit count estimation process assumes that housing units are perfectly distributed within a PUMA). Staff addressed this issue by removing from the output tabs any areas that had fewer than 100 housing units, in order to ensure that only populated areas were included in the outputs.

c. Organization of Report

The remainder of this report presents a summary of the affordability metrics based on an analysis of data for the year 2021 and 2022 (Chapter 2), an analysis of the impact of assistance programs (Chapter 3), a projection of electric AR in future years based on the most recently available cost and rate data (Chapter 4), a review of how the metrics have been used in CPUC proceedings over the past year

(Chapter 5), and a summary on the timeline and process for future annual affordability reports (Chapter 6).

2. Summary of 2022 Results and Affordability Demarcations

This chapter summarizes the 2022 affordability analysis for all essential services combined as a bundle, as well as for each individual service separately.³¹ Affordability is measured using the affordability ratio (AR), hours at minimum wage (HM), and CalEnviroScreen (CES) metrics, and vulnerable communities are identified using the disadvantaged communities (DAC) and areas of affordability concern (AAC) definitions. The results show similar patterns across the four industries, particularly the geographic location of vulnerable communities. Results for 2021 are also included in the appendix files of this report.

a. Bundled Affordability Ratio, CalEnviroScreen Results, and Hours at Minimum Wage

Before looking at the more detailed industry-specific affordability ratio results, this section presents the bundled AR values (representing affordability of all essential services combined) across different parts of the state as well as the CES and HM results.

Bundled 2022 AR₂₀ values are presented as weighted averages by PUMA in **Figure 2**, with lower AR₂₀ values (representing areas where utility services are more affordable) shaded green and higher AR₂₀ values shaded warmer colors. The legend for this map is such that any AR₂₀ value above 35 percent is top coded as red.³² The detailed AR results for bundled service as well as industry-specific AR values, and for households at the 20th and 50th income percentiles at various levels of geographic specificity, are available in the updated AR Calculator tool that is available on the CPUC website.³³ An interactive version of **Figure 2**, which allows the user to see granular details of densely populated urban areas, is available on the CPUC's website.³⁴

³¹ Bundled AR and HM values reflect that some areas in California are served by a mix of CPUC-jurisdictional and non-jurisdictional utilities (for instance, a non-jurisdictional water provider serving an area that is part of a CPUC-jurisdictional electric utility's service territory). Individual energy and water industry AR and HM values focus exclusively on CPUC-jurisdictional provider territories.

³² A top value of 35 percent for the legend was selected because analysis from prior affordability reports indicated that this was the approximate inflection point in the distribution of bundled AR values.

³³ 2021/2022 AR Calculator: 2021 and 2022 AR Calculators: 2021 ARC (https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/arc_2021_final.xlsm); 2022 ARC (https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/arc_2022_final.xlsm). Note that these are large files. It is highly recommended that you save them to your hard drive (right-click and save) and open from there.

³⁴ <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/affordability/2021-and-2022-annual-affordability-refresh>

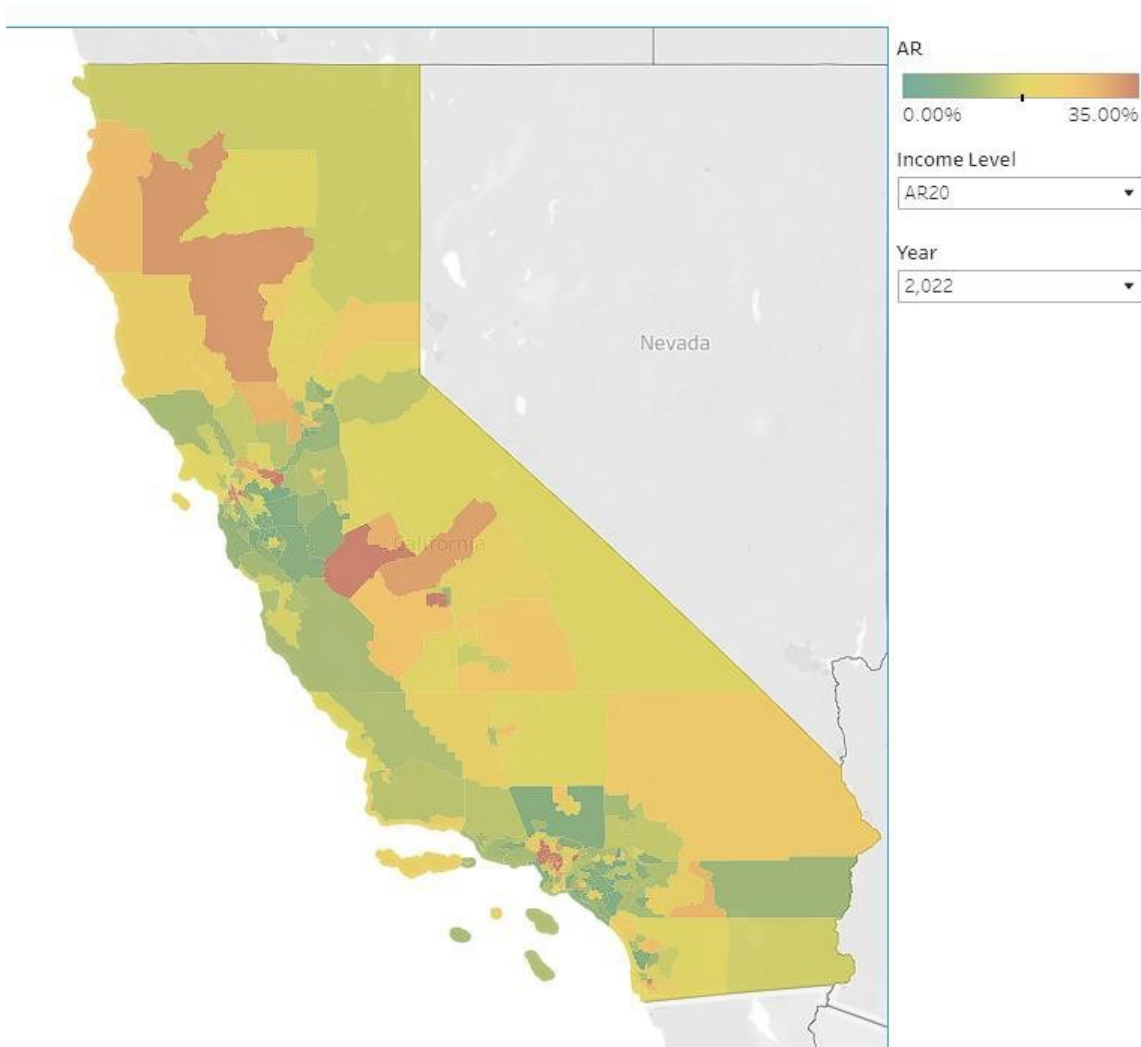


Figure 2: Bundled Statewide AR₂₀ Values by PUMA (2022)

Similar to the results presented in prior affordability reports, the map in **Figure 2** shows that there is a wide range of AR values for households at the 20th percentile of the local income distribution. Many parts of Los Angeles continue to reflect high AR values. Additionally, select areas in San Francisco Bay Area, San Diego, and the Central Valley also display high values.

This trend is mirrored in the CES scores presented at census tract level, as shown in Figure 3. This map shows the highest CES scores in the Central Valley and major urban areas, with much lower scores in wealthier communities particularly along the coast.

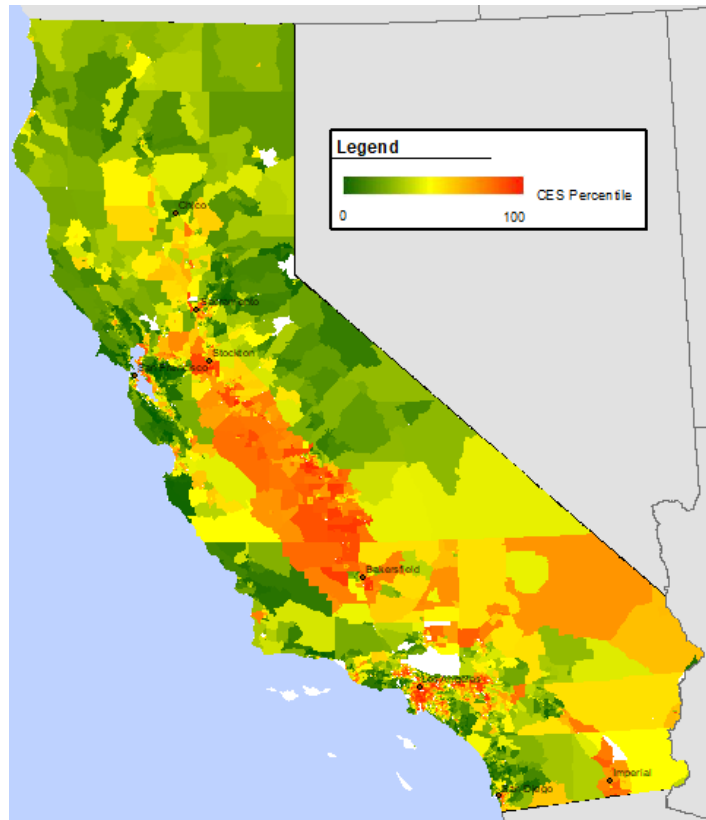


Figure 3: CalEnviroScreen 4.0 Scores by Census Tract

These patterns are also reflected in the bundled HM map in **Figure 4**, which shows where minimum wage earners are least able to afford essential usage bills (EUB) or essential service bills (ESB).³⁵ All three metrics consistently identify many of the same communities as being the most vulnerable, suggesting that poverty, pollution burdens, and high non-discretionary expenses share a common footprint. More detailed, interactive versions of the CES and HM maps are also available on the CPUC's website.³⁶ Bundled AR, CES, and HM results are also available in tabular form on the CPUC's website.³⁷ The minimum wage data associated with the HM calculations are also available on the CPUC's website.³⁸

³⁵ D. 20-07-032, COL 6 used "essential utility service charge" to refer to the bill a customer pays for essential usage or essential service. The Phase 2 Decision further clarifies that for energy and water, this bill is known as the essential usage bill (EUB) and for communications it is known as the essential service bill (ESB). EUBs/ESBs are obtained by data request.

³⁶ <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/affordability/2021-and-2022-annual-affordability-refresh>

³⁷ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/ar-ces-and-hm-results-in-tabular-form-all-industries-2021-and-2022.xlsx>

³⁸ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/ar-ces-and-hm-results-in-tabular-form-all-industries-2021-and-2022.xlsx>

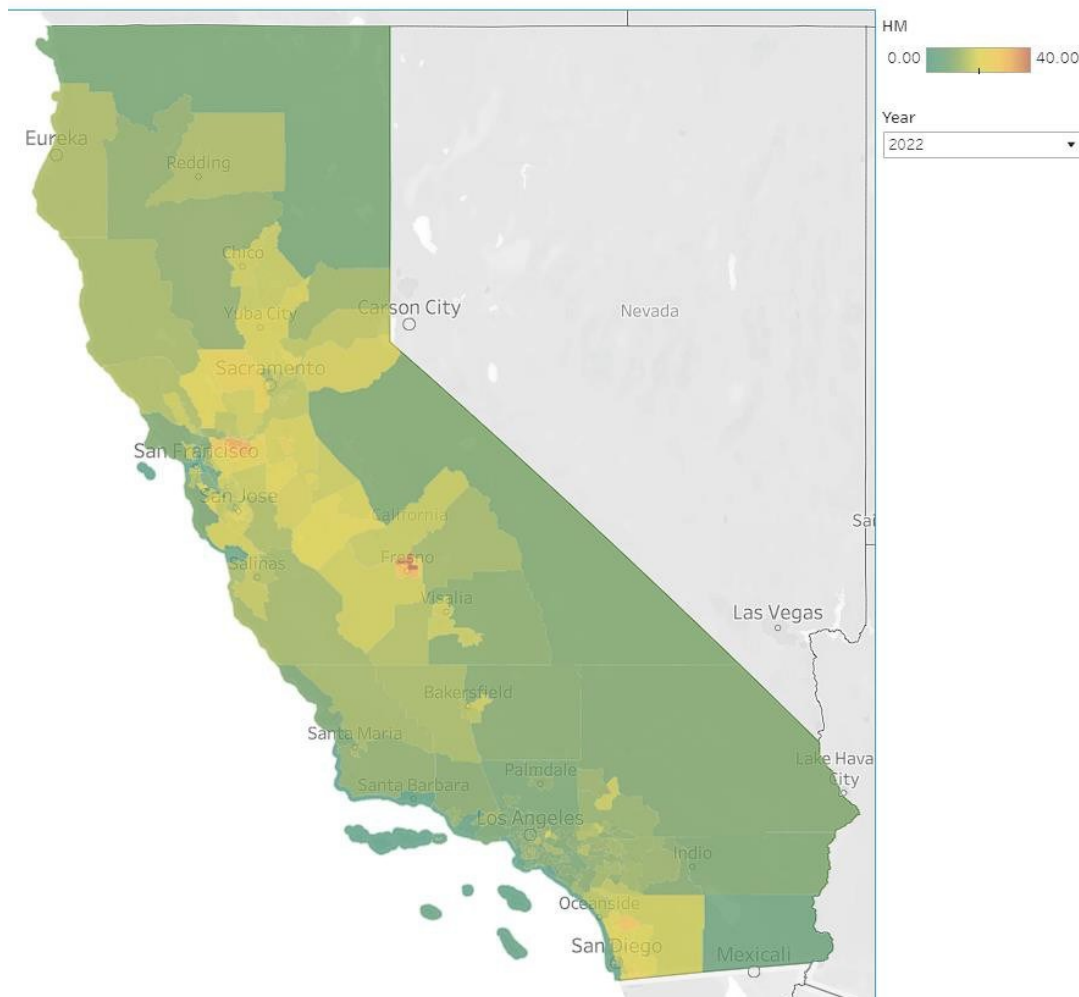


Figure 4: Bundled Statewide HM Values by PUMA (2022)

b. Summary of 2022 AR Values, HM Values, Affordability Demarcations, and AAC, by Industry

This section presents the industry-specific affordability results for 2022 as measured by the AR and HM metrics for each essential service. The distributions of industry-specific AR₂₀ values are also compared to the distributions from prior years to assess whether the affordability demarcations that were presented in prior affordability reports are still reasonable. Using these affordability demarcations, the AAC census tracts for each industry are also discussed.

i. Electric

The 2022 electric AR₂₀ results for CPUC-jurisdictional areas are presented in **Figure 5** below. The legend for this map is scaled so that any area where the AR₂₀ value is over the affordability demarcation of 15 percent is shaded red, with values presented on a spectrum from green (lower AR₂₀ values, which translates to more affordable electric service) to red (higher AR₂₀ values). Similar to the bundled results presented in **Figure 2**, most of the areas with extremely high AR values are in lower income areas such as the Central Valley, as well as the lower income parts of major metro areas. Because this map only

shows CPUC-jurisdictional areas, some parts of the LA metro area that showed high bundled AR₂₀ values in **Figure 2** are not displayed on this map. They are located in LA Department of Water and Power's (LADWP) service territory.

While the results presented here focus on the AR₂₀ analysis, AR values for median households (i.e., AR₅₀ values) are available on the CPUC's website.³⁹

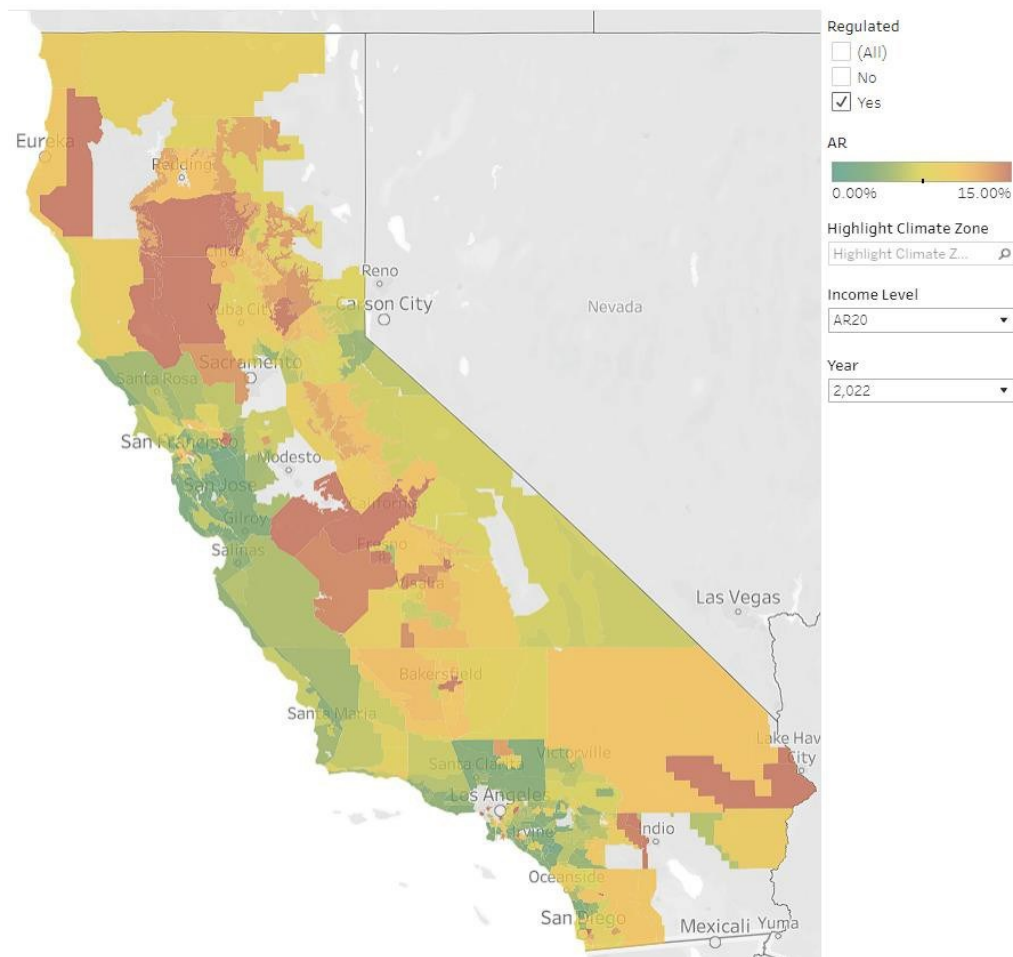


Figure 5: Electric AR₂₀ Values for CPUC-Jurisdictional Areas (2022)

The distributions of electric AR₂₀ values for 2019 through 2022 are shown in **Figure 6**, with the x-axis showing the percent of households in California that live in areas where the AR₂₀ value is at or above a given value. The data is presented this way to identify which AR₂₀ values are significantly higher than the rest of the state, relatively speaking. The distribution of electric AR₂₀ values from the 2019 analysis was used to select an affordability demarcation of 15 percent, which is the approximate inflection point of the 2019 distribution. AR₂₀ distributions for subsequent years show fairly similar inflection points, indicating that the 15 percent affordability demarcation is still reasonable for electric service.

³⁹ <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/affordability/2021-and-2022-annual-affordability-refresh>

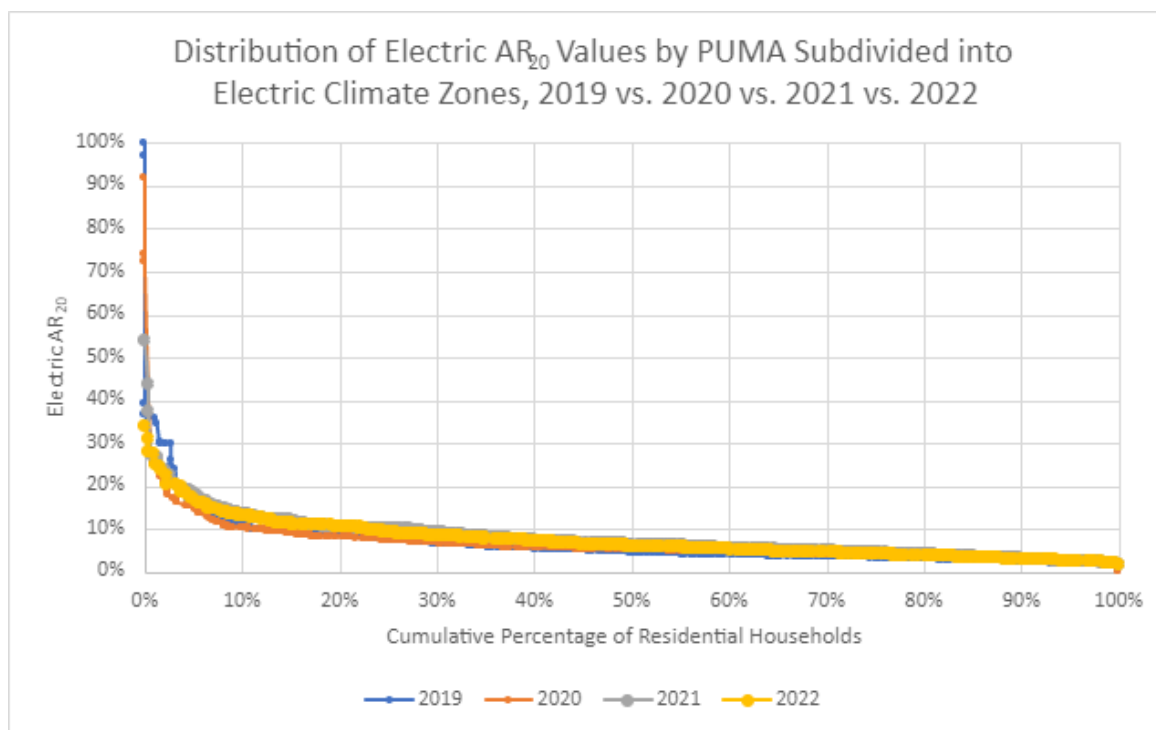


Figure 6: Distribution of Electric AR₂₀ Values by PUMA Subdivided into Climate Zones (CPUC-Jurisdictional Utilities), 2019 to 2022

Using a 15 percent affordability demarcation for electricity, AACs were identified. **Figure 7** shows the CPUC-jurisdictional AAC census tracts for electric service and **Table 2** lists the PUMA/climate zone⁴⁰ areas with the ten highest electric AR₂₀ values. Only two out of ten of these areas were among the top ten PUMA/climate zone areas with the highest electric AR₂₀ results in the 2020 Reports, indicating that there is a degree of volatility in the income and housing cost estimates that is resulting in many of the relative AR₂₀ values to change from year to year.⁴¹ The complete list of CPUC-jurisdictional PUMA/climate zones for electric service that are AACs and the census tracts associated with these areas are provided on the CPUC website.⁴²

⁴⁰ Climate zones are drawn in each IOU's service territory based on climactic variation and are also known as baseline territories as defined by each IOU in its Preliminary Statements. This table presents the AR results for climate zones subdivided into constituent PUMAs, along with the household income and housing cost data for the associated PUMAs.

⁴¹ These two PUMAs are 03731 West Hollywood and Beverly Hills and 01904 Fresno (Southwest).

⁴² <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/2022-aac.xlsx>

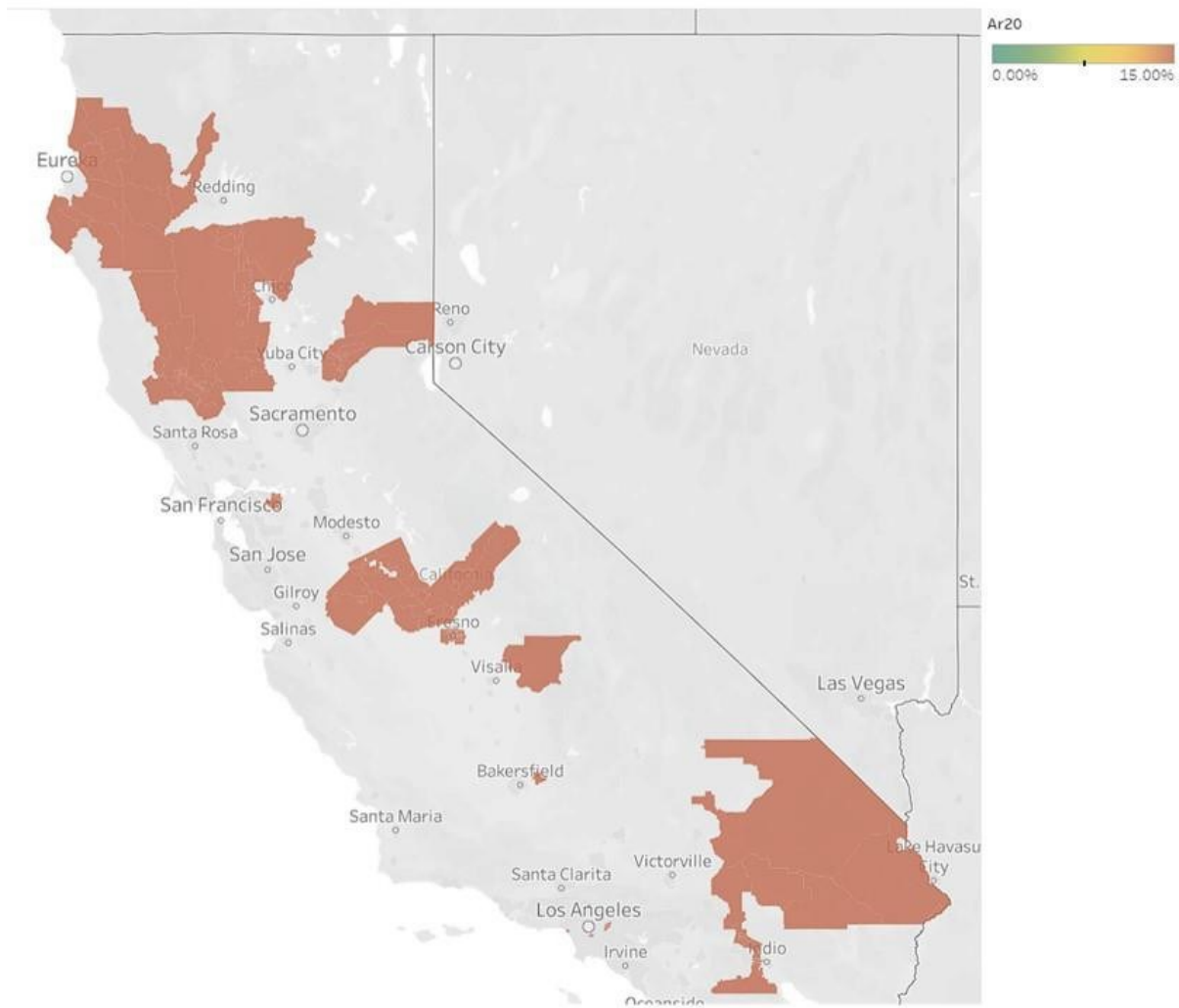


Figure 7: Electric Areas of Affordability Concern (2022, CPUC-Jurisdictional)

PUMA	County/City	Electric Climate Zone	Electric AR ₂₀	20th Percentile Income (\$/yr)	20th Income Percentile Housing Cost (\$/yr)
03729	Los Angeles County (West Central)--LA City (West Central/Westwood & West Los Angeles) PUMA	SCE 6	34.04%	\$27,906	\$24,030
03731	Los Angeles County (Central)--West Hollywood & Beverly Hills Cities PUMA	SCE 9	31.02%	\$28,876	\$23,887
03747	Los Angeles County (Central)--LA City (Central/West Adams & Baldwin Hills) PUMA	SCE 8	28.13%	\$22,626	\$14,333
01905	Fresno County (Central)--Fresno City (Southeast) PUMA	PG&E R	27.79%	\$17,800	\$9,559
04701	Merced County (West & South)--Los Banos & Livingston Cities PUMA	PG&E R	25.29%	\$21,707	\$12,792
03738	Los Angeles County (Central)--El Monte & South El Monte Cities PUMA	SCE 9	24.63%	\$25,320	\$15,408
01100	Colusa, Glenn, Tehama & Trinity Counties PUMA	PG&E R	23.73%	\$19,753	\$9,180
06515	Riverside County--Palm Desert, La Quinta (West) & Desert Hot Springs Cities PUMA	SCE 15	22.69%	\$21,752	\$11,688
01100	Colusa, Glenn, Tehama & Trinity Counties PUMA	PG&E Y	20.42%	\$19,753	\$9,180
01904	Fresno County (Central)--Fresno City (Southwest) PUMA	PG&E R	20.36%	\$19,536	\$9,176

Table 2: PUMA/Climate Zone Areas with Ten Highest Electric AR₂₀ Values (2022, CPUC-Jurisdictional)

Table 3 presents the ten highest electric HM values in CPUC-jurisdictional areas. This shows where a household earning minimum wage would need to work the most hours in a month to pay for an

essential level of electric service. These areas are unsurprisingly all relatively hot climate zones, where essential electric service quantities are high in summer months.

Electric Climate Zone	HM 2022
SCE 15	12.06
SCE 5	8.31
SDG&E MOUNTAIN	11.25
SDG&E DESERT	11.08
SCE 13	7.73
PG&E W	8.99
PG&E R	8.91
SCE 10	7.07
SCE 14	6.93
PacCorp DEL NORTE	7.14

Table 3: Electric Climate Zones with the Ten Highest Electric HM Values (2022, CPUC-Jurisdictional)

ii. Natural Gas

The 2022 gas AR₂₀ results for CPUC-jurisdictional areas are presented in **Figure 8** below. The legend for this map is scaled so that any area where the AR₂₀ value is over the affordability demarcation of 10 percent is shaded red, with values presented on a spectrum from green (lower AR₂₀ values, which translates to more affordable gas service) to red (higher AR₂₀ values). Similar to the bundled and electric AR results, most of the areas with extremely high gas AR values are in lower income areas such as the Central Valley, as well as the lower income parts of metro areas. As with the electric AR map presented in **Figure 5**, this map only shows areas that are CPUC-jurisdictional.

While the results presented here focus on the AR₂₀ analysis, AR values for median households (i.e., AR₅₀ values) are available on the CPUC website.⁴³

⁴³ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/ar-ces-and-hm-results-in-tabular-form-all-industries-2021-and-2022.xlsx>

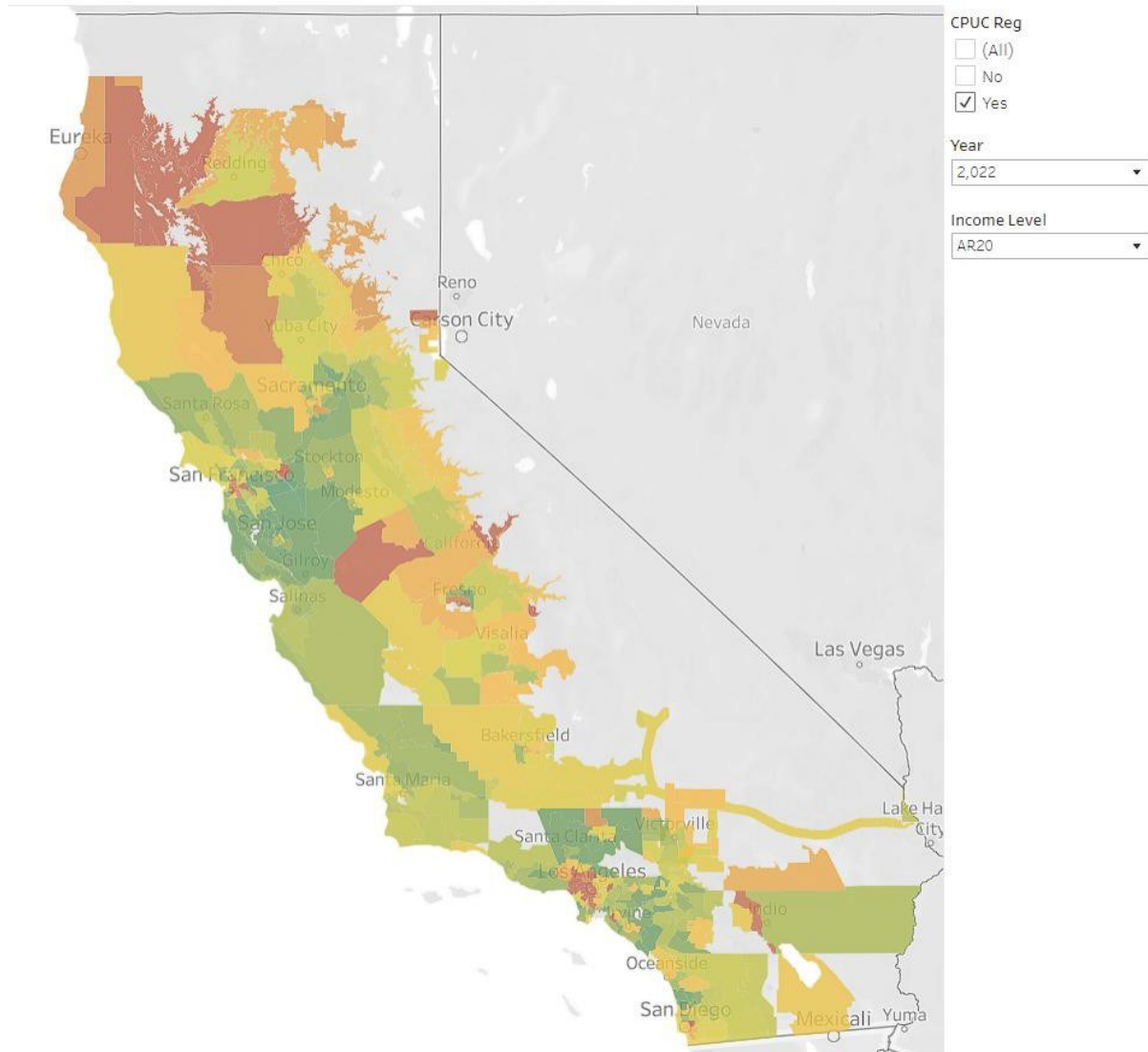


Figure 8: Gas AR₂₀ Values for CPUC-Jurisdictional Areas (2022)

As with the electric AR₂₀ values, the distributions of gas AR₂₀ values is presented in Figure 9 for 2019 through 2022. This plot allows for an assessment of the 10 percent affordability demarcation for gas service that was originally established based on the 2019 analysis. The distributions of gas AR₂₀ for 2021 and 2022 have shifted to the right relative to the distributions for 2019 and 2020, indicating that natural gas has become less affordable overall compared to prior years. This is likely the result of the general increase in natural gas rates over the past few years. However, the inflection point in the distribution still occurs around an AR₂₀ value of 10 percent, indicating that the 10 percent affordability demarcation is still a reasonable method for identifying where gas service is substantially less affordable for lower income households compared to the rest of the state.

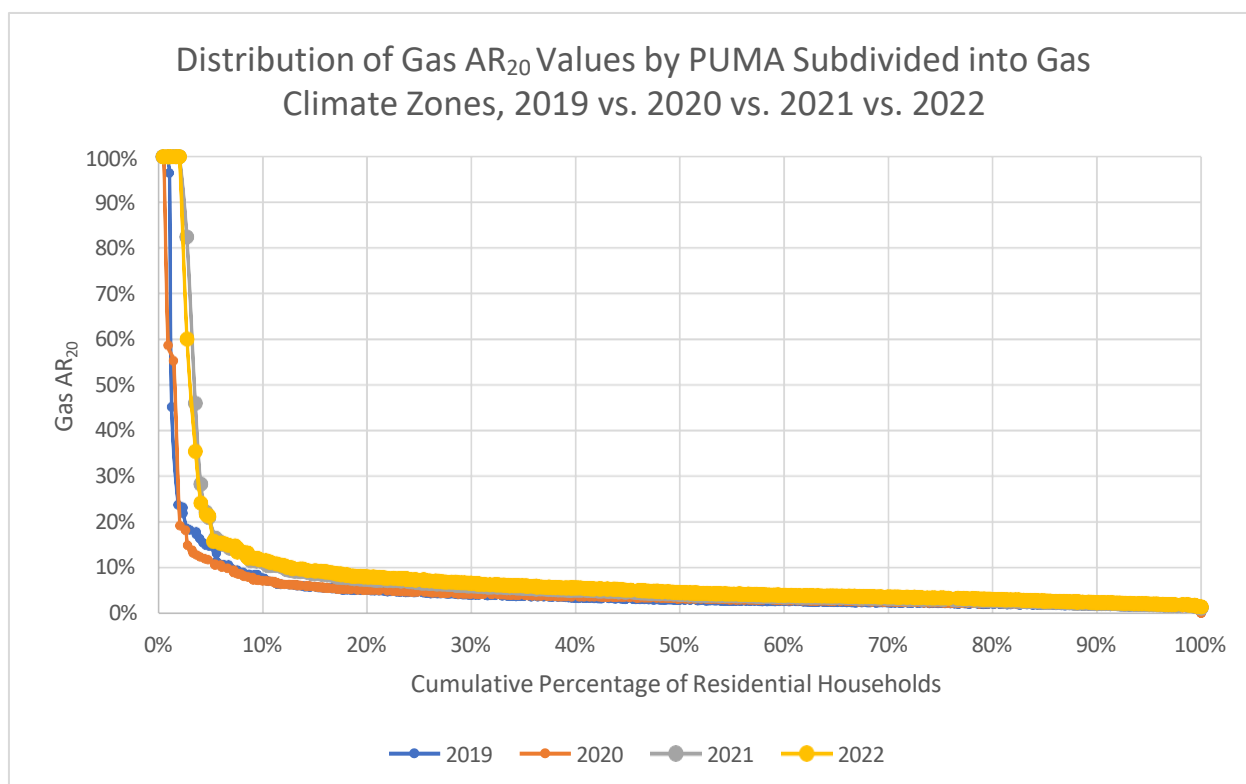


Figure 9: Distribution of Gas AR₂₀ Values by PUMA Subdivided into Climate Zones (CPUC-Jurisdictional Utilities), 2019 to 2022 Comparison

Using this 10 percent demarcation, the CPUC-jurisdictional AACs for gas service were identified, as shown in **Figure 10**, and the ten highest PUMA/climate zone areas with gas AR₂₀ values greater than 10 percent are listed in **Table 4**.⁴⁴ Five out of ten of these areas are among the top ten PUMA/climate zone areas with the highest gas AR₂₀ in the 2020 analysis.⁴⁵ The complete list of CPUC-jurisdictional PUMA/climate zones for gas service that are AACs and the census tracts associated with these areas are available on the CPUC's website.⁴⁶

⁴⁴ As with the electric results, this table presents the AR results for climate zones subdivided into constituent PUMAs, along with the household income and housing cost data for the associated PUMAs.

⁴⁵ These five PUMAs are: 03733 Los Angeles (Central/Koreatown), 03746 Los Angeles (Central/University of So. Calif./Exposition Park), 03744 Los Angeles (East Central/Central/Boyle Heights), 03751 Los Angeles (South Central/Watts), and 03731 West Hollywood and Beverly Hills.

⁴⁶ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/2022-aac.xlsx>

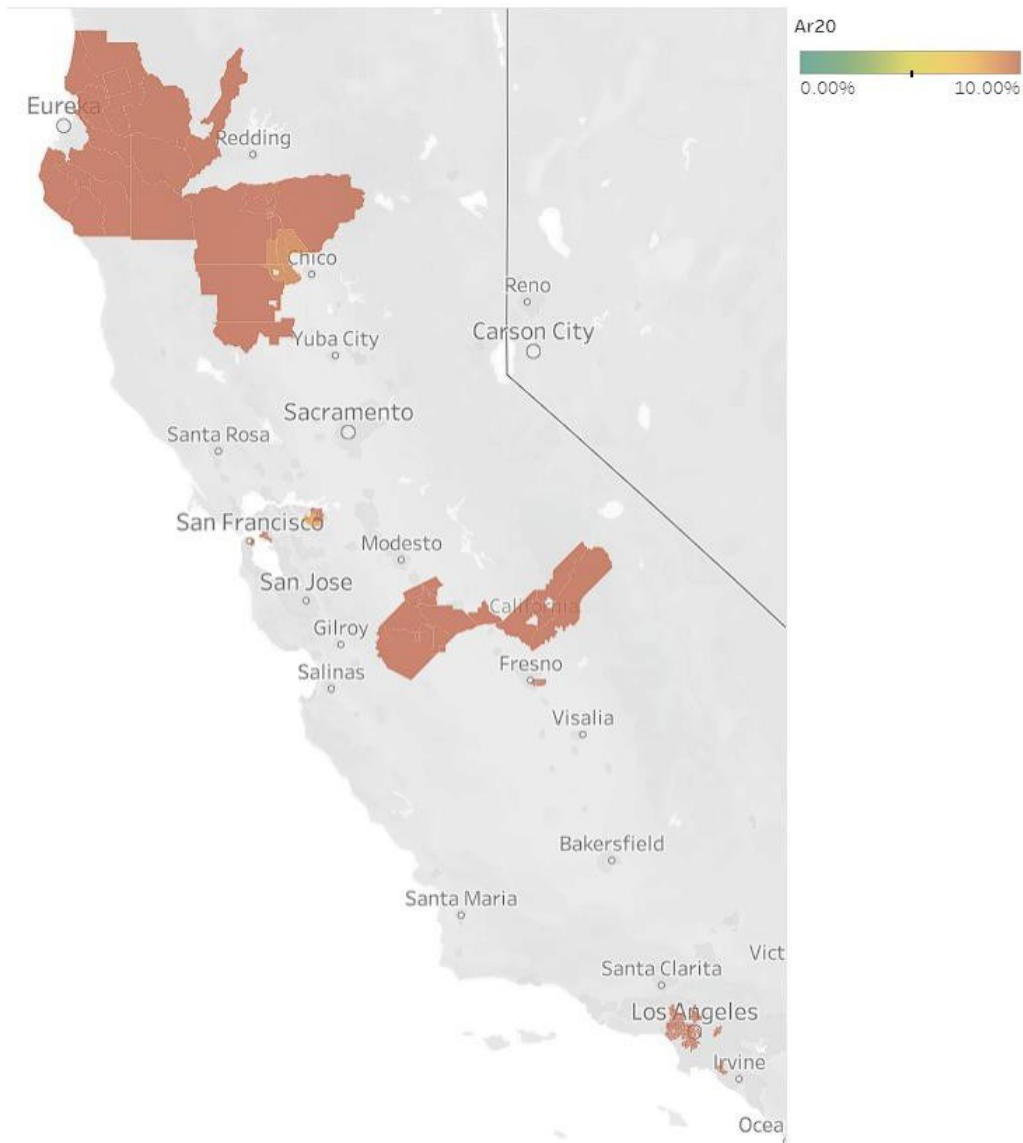


Figure 10: Gas Areas of Affordability Concern (2022, CPUC-Jurisdictional)

PUMA	County/City	Gas Climate Zone	Gas AR ₂₀	20th Percentile Income (\$/yr)	20th Income Percentile Housing Cost (\$/yr)
03721	Los Angeles County (North)--LA City (Northeast/North Hollywood & Valley Village) PUMA	SCG 1	100.00%	\$19,394	\$18,607
03733	Los Angeles County (Central)--LA City (Central/Koreatown) PUMA	SCG 1	100.00%	\$16,162	\$15,283
03746	Los Angeles County--LA City (Central/Univ. of Southern California & Exposition Park) PUMA	SCG 1	100.00%	\$15,084	\$14,480
03744	Los Angeles County (Central)--LA City (East Central/Central City & Boyle Heights) PUMA	SCG 1	100.00%	\$12,929	\$13,461
03751	Los Angeles County (South Central)--LA City (South Central/Watts) PUMA	SCG 1	100.00%	\$13,468	\$11,463
03732	Los Angeles County (Central)--LA City (East Central/Hollywood) PUMA	SCG 1	60.02%	\$19,071	\$16,009
03729	Los Angeles County (West Central)--LA City (West Central/Westwood & West Los Angeles) PUMA	SCG 1	35.46%	\$27,906	\$24,030
03731	Los Angeles County (Central)--West Hollywood & Beverly Hills Cities PUMA	SCG 1	24.13%	\$28,876	\$23,887
03722	Los Angeles County (Northwest)--LA City (North Central/Van Nuys & North Sherman Oaks) PUMA	SCG 1	21.59%	\$23,704	\$18,229
03738	Los Angeles County (Central)--El Monte & South El Monte Cities PUMA	SCG 1	21.35%	\$25,320	\$15,408

Table 4: PUMA/Climate Zone Areas with Ten Highest Gas AR₂₀ Values (2022, CPUC-Jurisdictional)

Gas Climate Zone	HM 2022
Southwest Gas – Truckee	8.43
Southwest Gas – North Lake Tahoe	7.66
Southwest Gas – South Lake Tahoe	7.64
Southern California Gas - Region 3	7.06
PG&E Y	6.80
Southwest Gas – Big Bear	6.10
PG&E P	5.16
SDG&E COASTAL	5.04
SDG&E MOUNTAIN	5.04
SDG&E DESERT	5.04
SDG&E INLAND	5.04

Table 5 presents the ten highest natural gas HM values in CPUC-jurisdictional areas. This shows where a household earning minimum wage would need to work the most hours in a month to pay for an essential level of natural gas service.

Gas Climate Zone	HM 2022
Southwest Gas – Truckee	8.43
Southwest Gas – North Lake Tahoe	7.66
Southwest Gas – South Lake Tahoe	7.64
Southern California Gas - Region 3	7.06
PG&E Y	6.80
Southwest Gas – Big Bear	6.10
PG&E P	5.16
SDG&E COASTAL	5.04
SDG&E MOUNTAIN	5.04
SDG&E DESERT	5.04
SDG&E INLAND	5.04

Table 5: Gas Climate Zones with the Ten Highest Gas HM Values (2022, CPUC-Jurisdictional)

iii. Water

The 2022 water AR₂₀ results for CPUC-jurisdictional areas are presented in **Figure 11** and **Figure 12** below. The legend for these maps are scaled so that any area where the AR₂₀ value is over the affordability demarcation of 10 percent is shaded red, with values presented on a spectrum from green (lower AR₂₀ values, which translates to more affordable water service) to red (higher AR₂₀ values). Similar to the bundled results presented in **Figure 2**, most of the areas with extremely high AR values are in lower income areas such as parts of the LA metro area.

While the results presented here focus on the AR₂₀ analysis, AR values for median households (i.e., AR₅₀ values) are available on the CPUC's website.⁴⁷

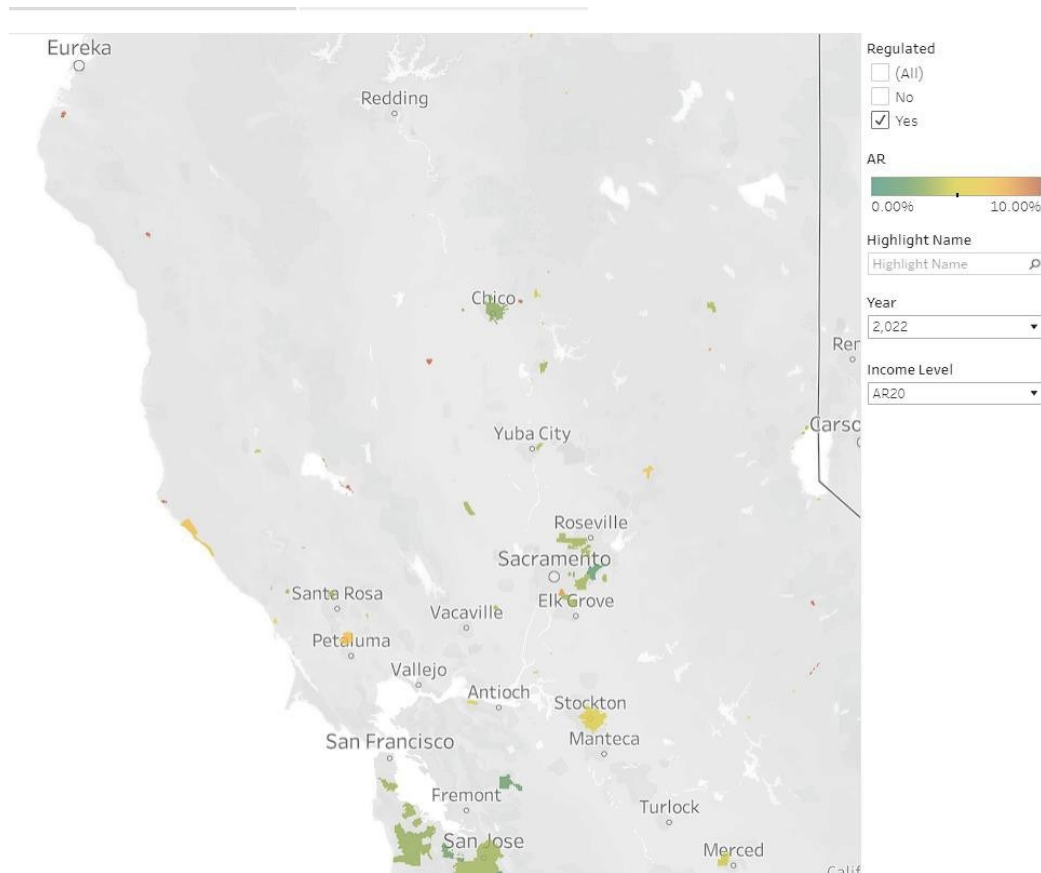


Figure 11: Northern California Water AR₂₀ Values for CPUC-Jurisdictional Areas (2022)⁴⁸

⁴⁷ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/ar-ces-and-hm-results-in-tabular-form-all-industries-2021-and-2022.xlsx>

⁴⁸ Visit the 2020 Annual Affordability Refresh webpage to use an interactive map: <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/affordability/2021-and-2022-annual-affordability-refresh>

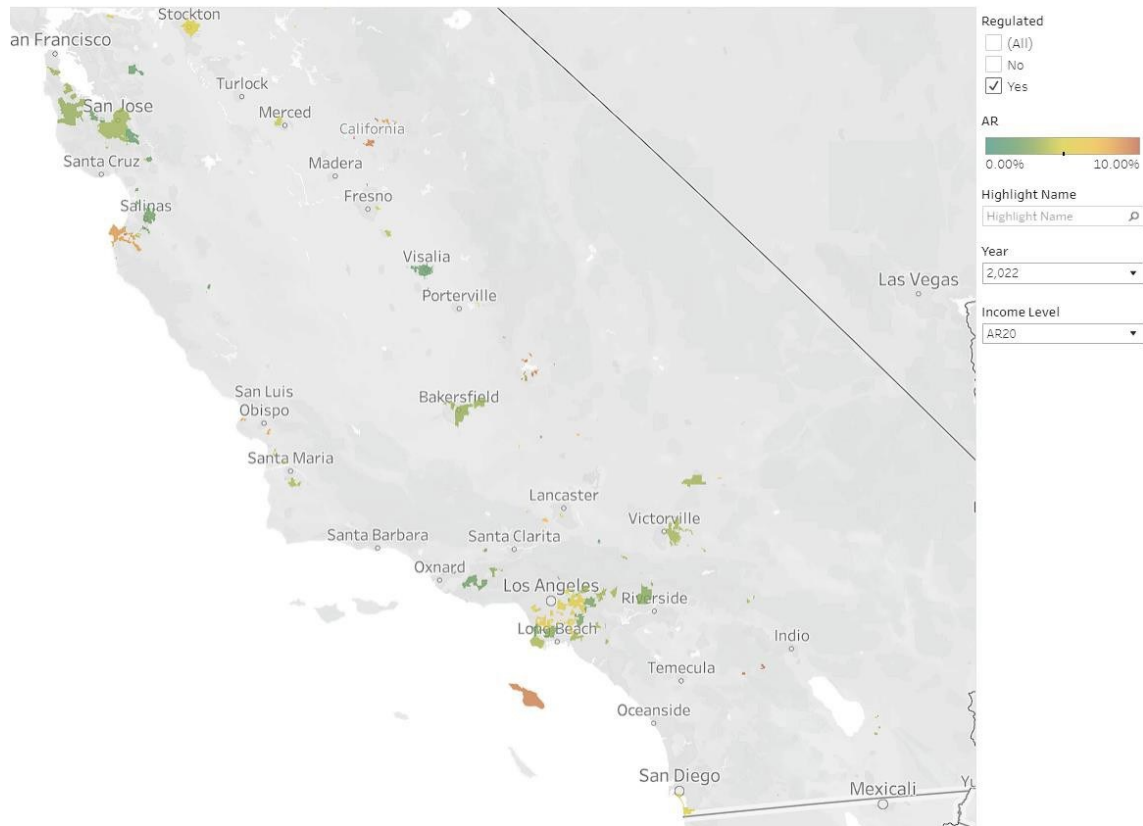


Figure 12: Southern California Water AR₂₀ Values for CPUC-Jurisdictional Areas (2022)

As with the electric AR₂₀ values, the distributions of water AR₂₀ values are presented in **Figure 13** below for 2019 through 2022. This plot allows for an assessment of the 10 percent affordability demarcation for water service that was originally established based on the 2019 analysis. The distribution of water AR₂₀ for 2022 is quite similar to what was seen in prior analyses, indicating that the 10 percent affordability demarcation is still a reasonable value for identifying where water service is substantially less affordable for lower income households compared to the rest of the state.

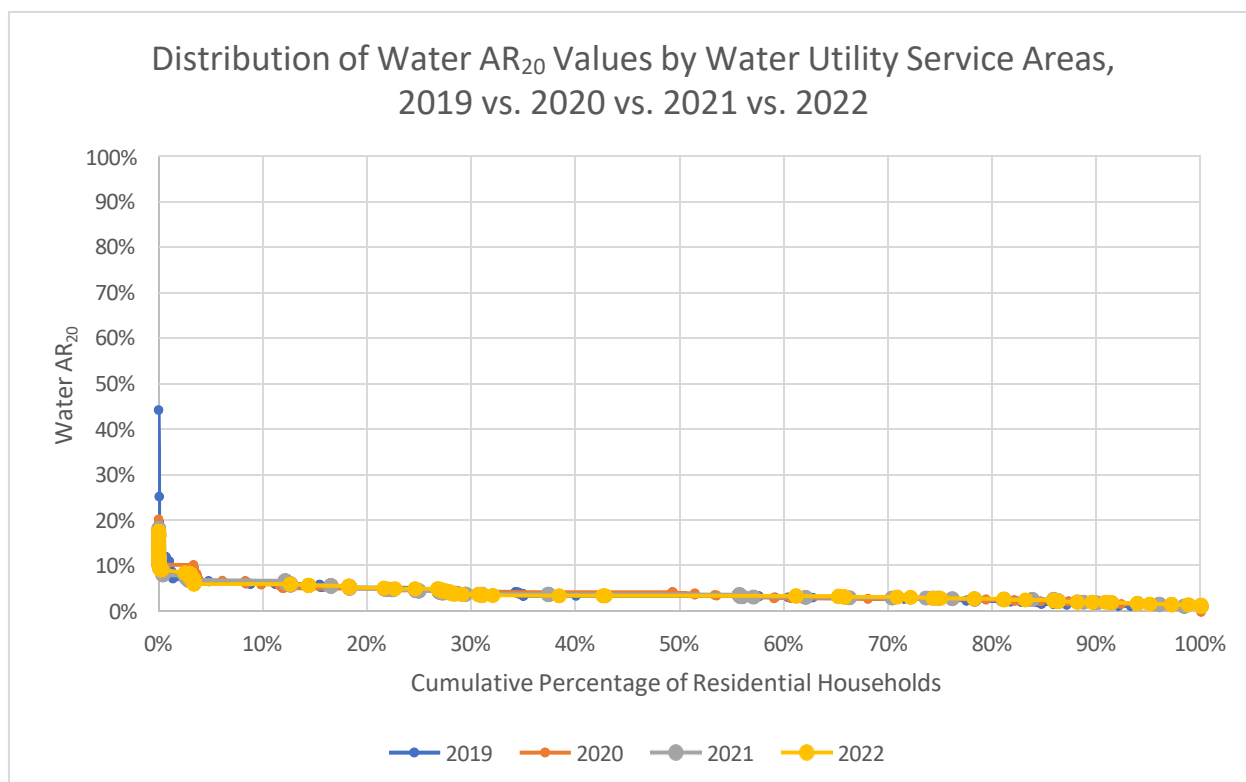


Figure 13: Distribution of Water AR₂₀ Values by Water Utility Service Areas (CPUC-Jurisdictional Utilities), 2019 to 2022

Using this 10 percent demarcation, the CPUC-jurisdictional AACs for water service were identified, as shown in **Figure 14**, below. The ten highest water utility districts or customer service areas based on water AR₂₀ values are listed in **Table 6**. This table identifies utilities with the highest AR₂₀ values, and also includes the 20th percentile incomes and associated housing costs for the PUMAs in which each utility is located.⁴⁹ Five out of ten regulated water utilities were among the top ten water utilities with the highest AR₂₀ results in both the 2020 and 2021/2022 Reports.⁵⁰ The complete list of CPUC-jurisdictional water utilities that are AACs and the census tracts associated with these areas are available on the CPUC website.⁵¹

⁴⁹ Unlike energy, for which IOU climate zones may be divided into PUMAs, water ratemaking areas are typically smaller in size and fully contained within PUMAs.

⁵⁰ These water ratemaking areas are served by: Alpine Village, Del Oro Water Company – Benbow, Del Oro Water Company – Strawberry Div., Lytle Springs WC, and Point Arena Water Works.

⁵¹ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/2022-aac.xlsx>

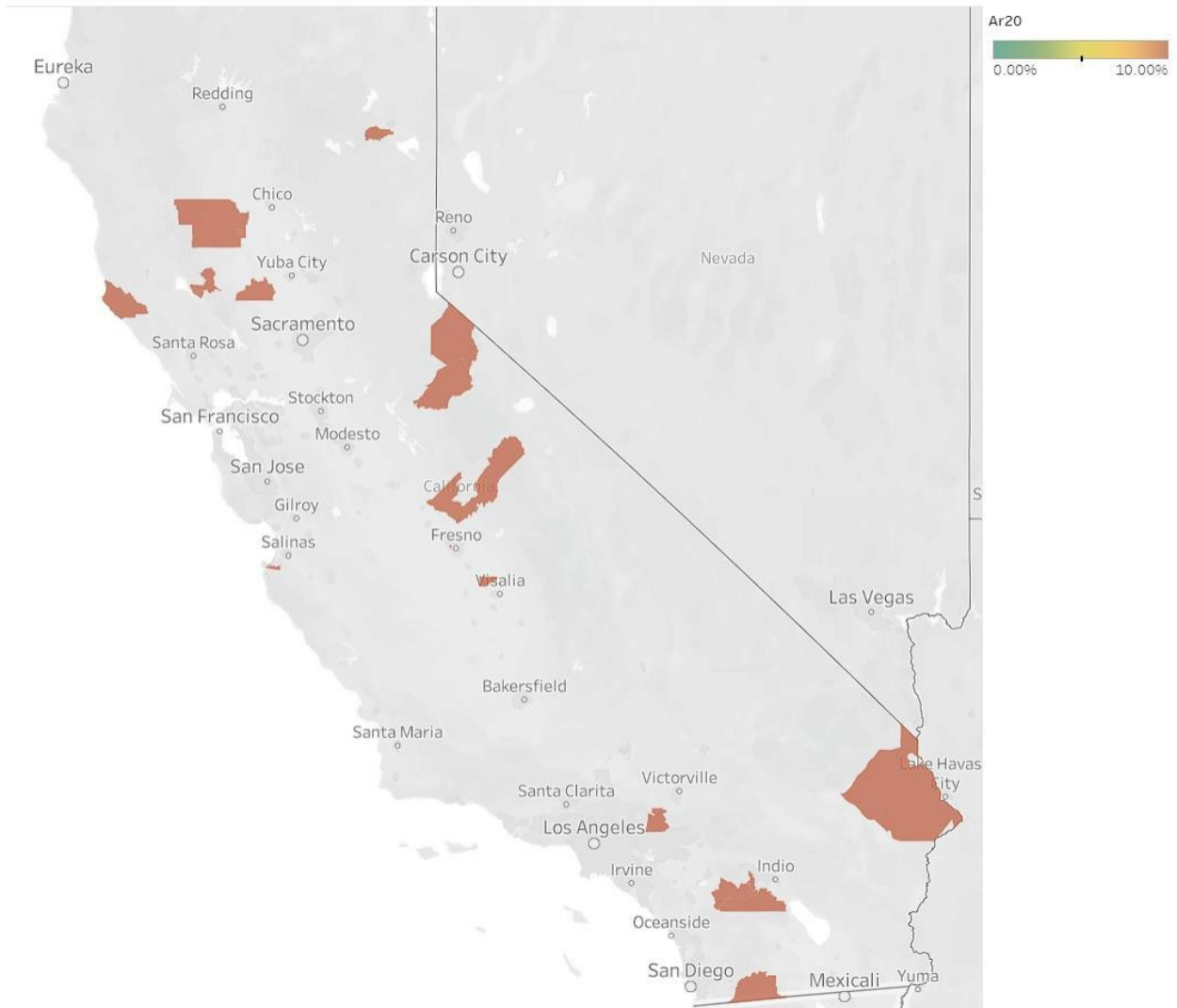


Figure 14: Water CPUC-Jurisdictional Areas of Affordability Concern (2022)

PUMA	County/City	Name	Water AR ₂₀	20th Percentile Income (\$/yr)	20th Income Percentile Housing Cost (\$/yr)
06502	Riverside County (Central)--Cathedral City, Palm Springs & Rancho Mirage Cities PUMA	ALPINE VILLAGE	17.69%	\$26,103	\$11,444
07101	San Bernardino County (Northeast)--Twentynine Palms & Barstow Cities PUMA	HAVASU WC	16.90%	\$21,752	\$8,930
03300	Lake & Mendocino Counties PUMA	POINT ARENA WATER WORKS	16.83%	\$23,986	\$9,641
02300	Humboldt County PUMA	BENBOW-DEL ORO W.C.	16.78%	\$24,095	\$12,225
00300	Alpine, Amador, Calaveras, Inyo, Mariposa, Mono & Tuolumne Counties PUMA	DEL ORO WATER COMPANY - STRAWBERRY DIV.	16.39%	\$29,304	\$10,731
07104	San Bernardino County (Southwest)--Phelan, Lake Arrowhead & Big Bear City PUMA	LYTLE SPRINGS WC	14.91%	\$33,499	\$14,753
10703	Tulare County (Outside Visalia, Tulare & Porterville Cities) PUMA	DEL ORO CALIFORNIA PINES DISTRICT	14.05%	\$21,707	\$8,153
07302	San Diego County (North & East)--Fallbrook, Alpine & Valley Center PUMA	LIVE OAK SPRINGS WATER SYSTEM	13.43%	\$40,104	\$18,593
03900	Madera County--Madera City PUMA	CALIFORNIA AMERICAN WATER - HILLVIEW	12.66%	\$22,684	\$11,074
01100	Colusa, Glenn, Tehama & Trinity Counties PUMA	DEL ORO WC - ARBUCKLE DISTRICT	12.21%	\$19,753	\$9,180

Table 6: Water Utility Service Areas with Ten Highest AR₂₀ Values (2022, CPUC-Jurisdictional)⁵²

Table 7 provides a list of the water utilities with the ten highest HM results. The results show where a household earning minimum wage would need to work the most hours in a month to pay for water service at the essential level. Much of California's minimum wage follows the state's minimum wage, with a few exceptions in the Bay Area, Los Angeles, and San Diego.

NAME	HM 2022
LYTLE SPRINGS WC	14.83
DEL ORO WATER COMPANY - STRAWBERRY DIV.	14.39
LIVE OAK SPRINGS WATER SYSTEM	14.12
ALPINE VILLAGE	13.10
LITTLE BEAR WATER COMPANY	12.36
NACIMIENTO WATER COMPANY	12.27
CANADA WOODS WC	11.88
SO. CAL. EDISON CO.-SANTA CATALINA	11.78
POINT ARENA WATER WORKS	11.16
LAKE ALPINE WATER COMPANY	10.45
CALIFORNIA AMERICAN WATER - MONTEREY	9.84

Table 7: Water Ratemaking Areas with the Ten Highest Water HM Values (2022, CPUC-Jurisdictional)⁵³

iv. Communications

The 2022 communications AR₂₀ results are presented in **Figure 15** below. The legend for this map is scaled so that any area where the AR₂₀ value is over the affordability demarcation of 15 percent is shaded red, with values presented on a spectrum from green (lower AR₂₀ values, which translates to more affordable communications service) to red (higher AR₂₀ values). While a large portion of the state is shaded green, there is a noticeable amount of red shaded areas scattered all over the state.

⁵² See <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/ar-ces-and-hm-results-in-tabular-form-all-industries-2021-and-2022.xlsx> for the complete list of AR₂₀ results.

⁵³ See <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/ar-ces-and-hm-results-in-tabular-form-all-industries-2021-and-2022.xlsx> for the complete list of HM results

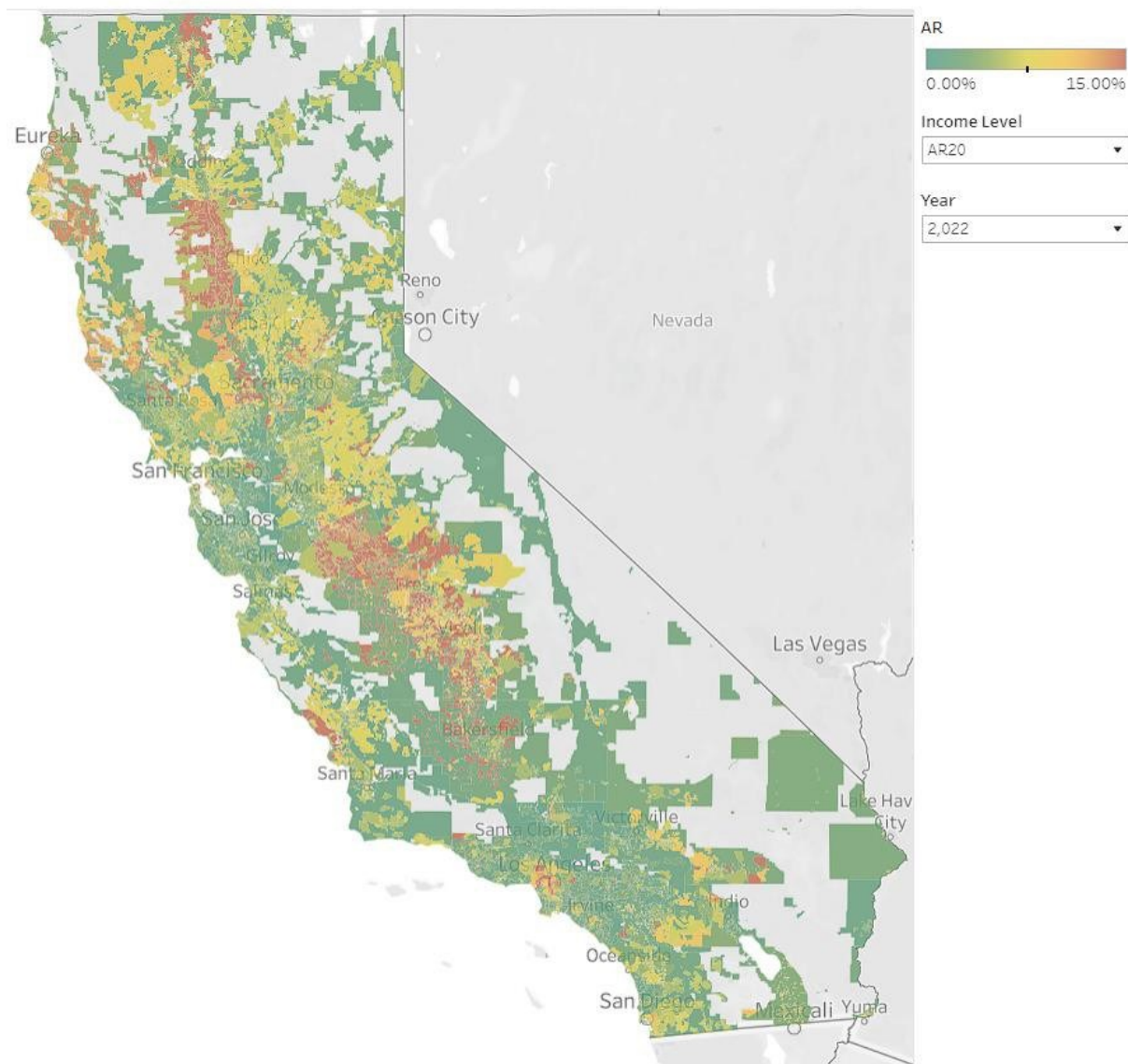


Figure 15: Communications AR₂₀ Values (2022)

In **Figure 16** below, the distribution of communications AR₂₀ values in 2022 are fairly consistent with the overall trend observed in prior years. Despite the year to year variation in the distribution of AR₂₀ values between 2019 and 2022, the y-axis value of the inflection point remains consistently around 15 percent. Based on this observation, the AR₂₀ demarcation value for 2022 should remain the same as prior years.

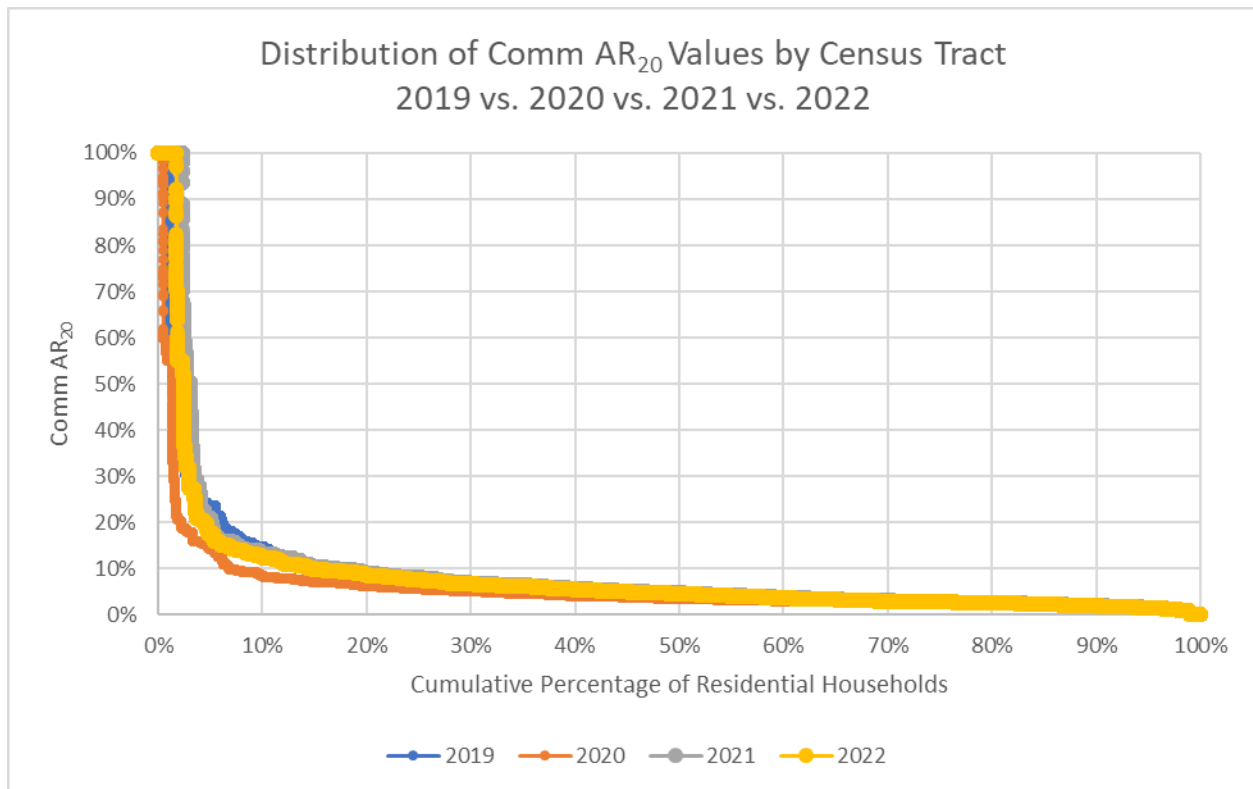


Figure 16: *Distribution of Communication AR₂₀ Values by Census Tract, 2019 to 2022 Comparison*

In the 2022 data set, the 1,808 census tracts that contain housing units with Communications AR₂₀ values above the 15 percent demarcation have been designated as AACs. A given census tract may be served by several combinations of communications service providers.⁵⁴ As long as one of those combinations within a census tract yields an AR₂₀ value greater than the 15 percent demarcation, then that census tract is designated as an AAC. See **Figure 17** below for a map of where these AACs are located across the state. For the complete list of these 1,028 communications AACs, please refer to the CPUC Website.⁵⁵

⁵⁴ Communications services, in particular broadband services, do not have mutually exclusive service territories like energy and water services.

⁵⁵ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/2022-aac.xlsx>

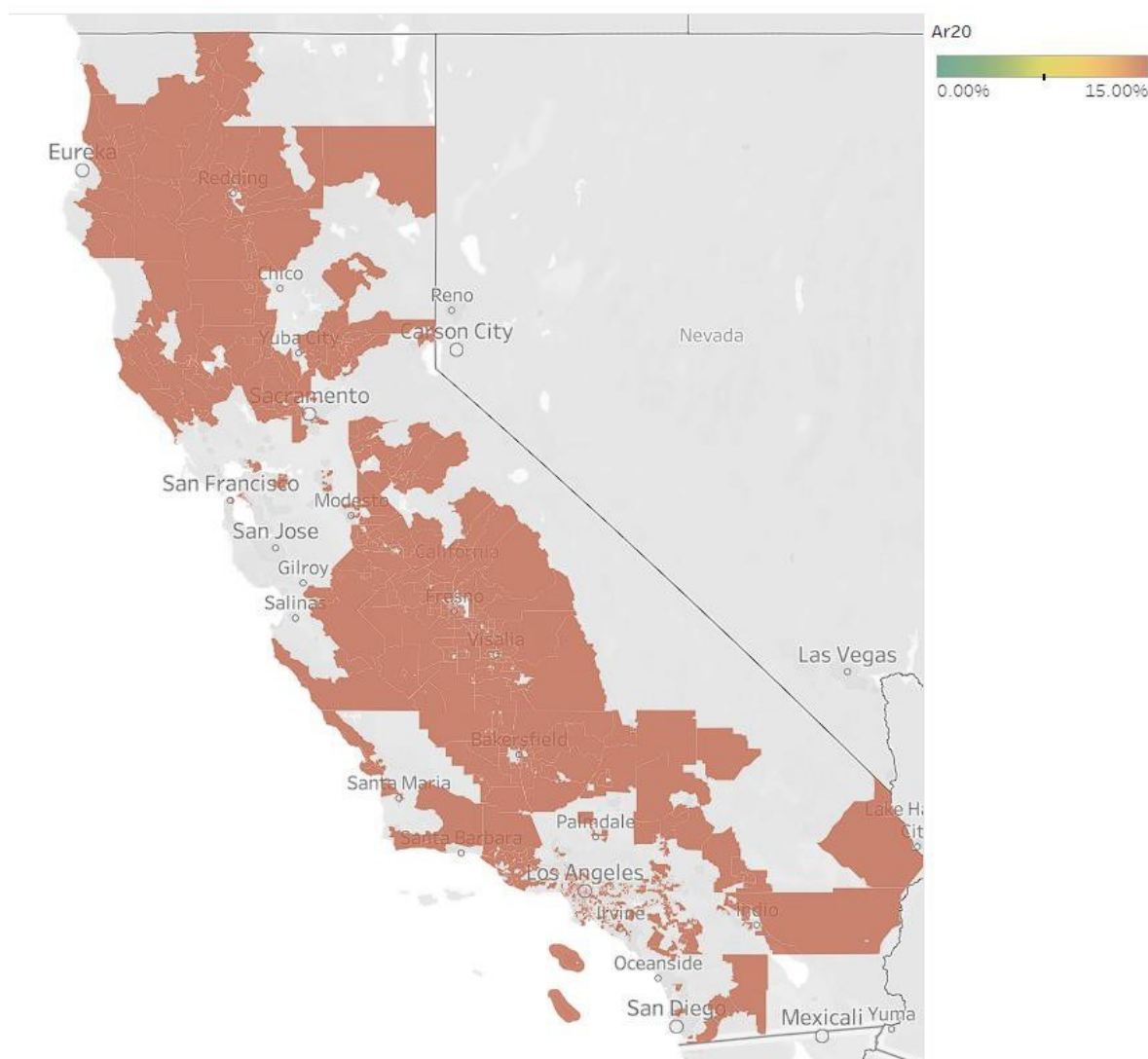


Figure 17: 2022 Communications Areas of Affordability Concern

By aggregating AR values up to PUMAs using 2022 data, it enables a PUMA-level analysis. The PUMA geography, being situated between county and census tract in terms of geographic specificity, strikes a balance between geographical familiarity and socioeconomic granularity. For a complete list of PUMA-level AR values, please refer to CPUC Website.⁵⁶

In 2022 the ten PUMAs with the highest communications AR₂₀ values greater than 15 percent are shown in Table 8. Four of the 2022 top ten PUMAs with the highest communications AR₂₀ values were holdovers from 2020.⁵⁷

⁵⁶ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/2022-aac.xlsx>

⁵⁷ The PUMAs in the 2020 Report that also were also in the list of top 10 highest Communications AR₂₀ values were: 03746 Los Angeles (Central/University of So. Calif./Exposition Park), 03744 Los Angeles (East Central/Central/Boyle Heights), 03751 Los Angeles (South Central/Watts), and 03731 Los Angeles (West Hollywood & Beverly Hills).

PUMA	County/City	Weighted Avg Communications AR ₂₀	20th Percentile Income (\$/yr)	20th Income Percentile Housing Cost (\$/yr)
03721	Los Angeles County (North)--LA City (Northeast/North Hollywood & Valley Village) PUMA	100.00%	\$19,394	\$18,607
03733	Los Angeles County (Central)--LA City (Central/Koreatown) PUMA	100.00%	\$16,162	\$15,283
03746	Los Angeles County--LA City (Central/Univ. of Southern California & Exposition Park) PUMA	100.00%	\$15,084	\$14,480
03744	Los Angeles County (Central)--LA City (East Central/Central City & Boyle Heights) PUMA	100.00%	\$12,929	\$13,461
03751	Los Angeles County (South Central)--LA City (South Central/Watts) PUMA	100.00%	\$13,468	\$11,463
03732	Los Angeles County (Central)--LA City (East Central/Hollywood) PUMA	53.57%	\$19,071	\$16,009
03729	Los Angeles County (West Central)--LA City (West Central/Westwood & West Los Angeles) PUMA	27.62%	\$27,906	\$24,030
01905	Fresno County (Central)--Fresno City (Southeast) PUMA	21.56%	\$17,800	\$9,559
03731	Los Angeles County (Central)--West Hollywood & Beverly Hills Cities PUMA	20.05%	\$28,876	\$23,887
03738	Los Angeles County (Central)--El Monte & South El Monte Cities PUMA	19.54%	\$25,320	\$15,408

Table 8: PUMAs with Ten Highest Communications AR₂₀ Values (2022)

Table 9 below displays the ten communications service provider combinations that yield the top ten highest HM values. Since the minimum wage is uniform across the state with a few exceptions in certain municipalities, high HM values often result directly from high costs of services. The HM values are imputed from the ESBs of all communications service provider combinations. For a complete list of ESBs for all combinations by census tracts, please refer to the CPUC Website.⁵⁸

Communication Providers	HM 2022
AFES Network Services LLC, AT&T California	48.62
AFES Network Services LLC, Frontier	48.08
AFES Network Services LLC, Frontier - Citizens	48.08
GeoLinks, AT&T California	25.98
GeoLinks, Frontier	25.44
GeoLinks, Frontier - Citizens	25.44
AVISP, AT&T California	25.37
AVISP, Frontier	24.83
GeoLinks, AT&T California	24.25
GeoLinks,	23.70
Central Coast Internet, AT&T California	23.52

Table 9: Communication Providers with the Ten Highest Communication HM Values

⁵⁸ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/ar-ces-and-hm-results-in-tabular-form-all-industries-2021-and-2022.xlsx>

c. Vulnerable Communities: Disadvantaged Communities and Areas of Affordability Concern

Using CalEPA's updated definitions of CES and disadvantaged communities, the census tracts shown in Figure 18 are highlighted as DACs in this year's Affordability Report. These census tracts qualify as DACs based on OEHHA's definition: the top 25 percent scoring areas using the most recent version of CES, along with census tracts that scored in the highest 5 percent of CES's Pollution Burden indicator but did not have an overall CES score due to lack of sufficient population characteristics data.⁵⁹ These census tracts also include federally recognized tribal lands and census tracts that were in the top 25 percent of CES scores using CES 3.0 but not in the top 25 percent of CES 4.0.⁶⁰

Comparing the map in Figure 18 to the bundled AR values in **Figure 2** shows that many of the DAC census tracts are in the same geographic regions where AR values are particularly high. This is further demonstrated by the overlay of AAC census tracts with DACs, as seen in Figure 19, which shows that many of the DACs are also AACs for one or more essential services. Given that the affordability concern for many of these areas is driven by relatively low income levels (which is incorporated in the AR calculation through the direct measurement of household income levels and in the CES metric through a community-level assessment of poverty), it makes sense that there is overlap between these different indicators of economic vulnerability. Details of the AAC census tracts is provided through interactive maps and in tabular form on the CPUC website.⁶¹

The fact that there is overlap between DACs and AACs is important because it supports the idea that the AAC designation is a meaningful indicator of economic hardship. While the DAC designation is based on current and historical data points, it is not something that can be forecast based on expected future changes in EUBs or ESBs. However, AR (and by extension AACs) can be forecast for future years based on expected changes in income, housing costs, and EUBs/ESBs. Therefore, it is possible to predict where AACs will materialize in future years based on future EUB and ESB values.

⁵⁹ Designation of Disadvantaged Communities Pursuant to Senate Bill 535 (De Leon), April 2017

⁶⁰ Final Designation of Disadvantaged Communities Pursuant to Senate Bill 535, May 2022

⁶¹ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/2022-aac.xlsx>; Interactive maps available at <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/affordability/2021-and-2022-annual-affordability-refresh>

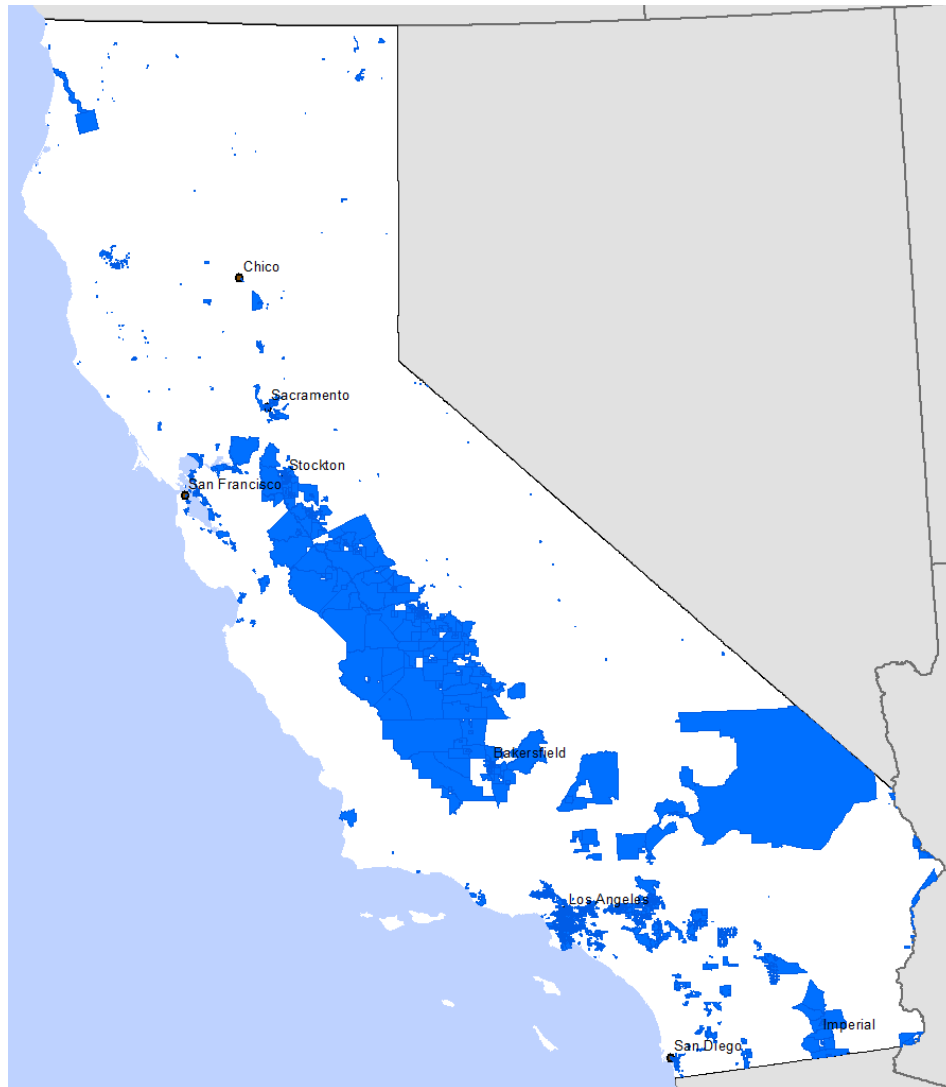


Figure 18: Disadvantaged Communities from CalEPA Report

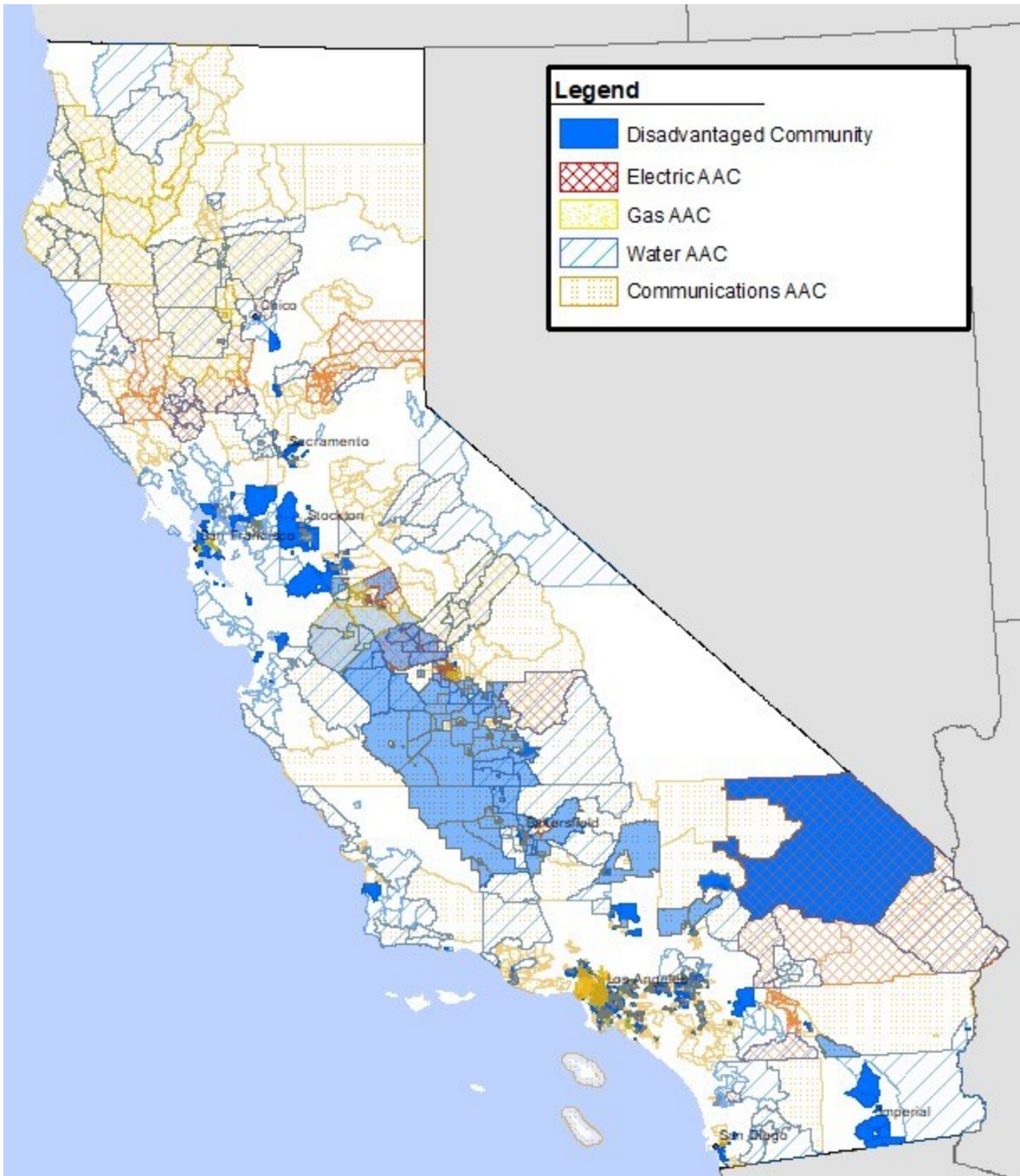


Figure 19: Disadvantaged Communities Overlaid with Areas of Affordability Concern⁶²

⁶² Areas in light blue represent disadvantaged communities that are also areas of affordability concern.

3. Impacts of CARE, CAP, and FERA

This chapter explores the impact of the California Alternate Rates for Energy (CARE) program, the Customer Assistance Program (CAP), and the Family Electric Rate Assistance (FERA) program on utility affordability in California. The CARE program provides discounts on electricity and natural gas bills for households with income below 200 percent of the Federal Poverty Guideline (FPG) income level, while the FERA program provides electric bill discounts to customers who earn too much to qualify for CARE but still earn less than 250 percent of the FPG income level.⁶³ The CAP program offers discounts to low-income customers on their water bills, and its income thresholds are aligned with the CARE program.

Because eligibility for the CARE and CAP programs are the same (and, in fact, CAP eligibility is often verified through CARE enrollment), this chapter will look at the affordability impacts of the CARE and CAP programs combined, while the FERA analysis is presented separately.

Because income thresholds for these programs are dependent on household size, whereas the affordability metrics are meant to characterize utility affordability for households of all sizes, it is not possible to incorporate these discounts into the affordability metrics in a way that allows the results to be applicable to all low-income households, even when focusing on the results for representative households at a particular income percentile. For instance, there are several PUMAs in California where a household would qualify for the CARE program if it was earning the 20th percentile income level for that PUMA, but only if the household contained at least three people. Similarly, there are PUMAs where the 20th percentile income level would qualify a household for CARE if the household contained at least four or more people, but not fewer. In fact, there are sixteen PUMAs in California where a representative household would not qualify for CARE if it was earning the 20th percentile income level even with a household size of five people. Yet there are likely still low-income customers who live in those PUMAs who are enrolled in CARE, demonstrating the difficulty in characterizing the affordability of utility services for all customers in a given area. A complete list of PUMAs, the estimated 20th and 50th percentile income levels for each PUMA, and a comparison with the 2022 CARE and FERA income thresholds for various size households is available on the CPUC website.⁶⁴

Conversely, while most customers who earn the median income for their PUMA would not qualify for these programs, there are some areas where the median income level does qualify a sufficiently small household for the discounts.

Instead of trying to present the impact of these programs on all customers, this chapter will discuss the affordability impacts on customers who are enrolled in the programs. Alongside this analysis, this chapter provides a snapshot of CARE and FERA enrollment rates⁶⁵ so as to provide a reference for how many customers benefit from the programs, and whether there are specific areas where further outreach may result in additional CARE and FERA enrollment.

⁶³ <https://www.cpuc.ca.gov/industries-and-topics/electrical-energy/electric-costs/care-fera-program>

⁶⁴ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/care-and-fera-income-thresholds-vs-2022-puma-income-estimates.xlsx>

⁶⁵ Enrollment rate refers to the percent of eligible customers enrolled in the program.

a. CARE and CAP

i. AR Impact

Table 10, Table 11, and **Table 12** show the impacts of the CARE and CAP discounts on electric, natural gas, and water AR values, respectively, for the areas with the highest AR₂₀ values under the base scenario (i.e., with no CARE or CAP discount included in the EUB). The electricity and natural gas results are presented at the geographic level of climate zone subdivided into constituent PUMAs for CPUC-jurisdictional areas, while the water results are presented for CPUC-jurisdictional utilities. The CARE/CAP scenario presented in this section presents the affordability metrics for representative households that are enrolled in both the CARE program and CAP where they are available.⁶⁶ The discount was applied to electricity, natural gas, and water EUBs for customers at the 20th and 50th income percentiles in this analysis and does not attempt to make a determination whether customers at that income level necessarily qualify for the programs. Again, the goal of this analysis is not to determine where customers are or are not enrolled in the programs, but to present the impact of the discount if a representative household is enrolled. The CARE discount in this analysis was only applied to the electric and gas EUBs⁶⁷ for the large IOUs and the SMJUs.⁶⁸ CAP discounts for water utilities were applied in accordance with each utility's tariff.

Table 10 and Table 11 show a sizable improvement in utility affordability for customers who are enrolled in the programs in the most vulnerable areas. The drop in AR value is larger in the areas that have a higher AR value under the base scenario, showing that the CARE program is generally more effective where electric and natural gas affordability concerns are most serious, since this is where the discount represents a bigger proportion of a household's budget after taking into account non-discretionary expenses. However, there are several electric and gas climate zone/PUMAs for which high AR₂₀ values⁶⁹ persist even with the CARE/CAP-reduced EUBs, indicating that EUBs for customers in these areas may be difficult to afford whether they receive low-income program relief or not. The other exception to this is in the four natural gas climate zone/PUMAs with the highest base scenario natural gas AR₂₀ values, where 20th percentile income levels are so low that the CARE and CAP discounts still do not leave those representative households with enough budget to pay all of their non-discretionary bills, resulting in the natural gas AR₂₀ values being top coded at 100 percent for most census tracts within those areas.

There is also a significant gap in affordability between low-income and median income customers, even when accounting for the impact of the CARE and CAP discounts for low-income households. Compare the AR values for 20th percentile customers with the CARE and CAP discounts to AR values for median income customers without the discount (i.e., the Base AR₅₀ values). Low-income households spend a significantly higher percentage of their income after housing costs on essential levels of electricity,

⁶⁶ Customer Assistance Programs (CAP) are offered to eligible customers of the Class A water companies. Each company administers its own CAP, so the benefits offered can vary. For all 9 Class As, the CAP eligibility limits match those of CARE.

⁶⁷ EUBs with the CARE discount applied were obtained by data request.

⁶⁸ The low-income assistance programs that are administered by the municipal utilities, if any, may be applied differently. For instance, SMUD's low-income assistance program applies a variable discount that is calculated based on a household's size and income level, making it difficult to include in this analysis. See <https://www.smud.org/en/Rate-Information/Low-income-and-nonprofits>.

⁶⁹ High AR₂₀ values correspond to Climate Zones/PUMAs with CARE/CAP-reduced electric AR₂₀ values greater than 15 percent and with CARE/CAP-reduced gas AR₂₀ values greater than 10 percent.

natural gas, water, and communications services in these areas, even when the CARE and CAP discounts are applied to their energy and water EUBs.

PUMA	County/City	Climate Zone Electric	Base AR ₂₀	CARE/CAP AR ₂₀	Base AR ₅₀	CARE/CAP AR ₅₀	Change in AR ₂₀	Change in AR ₅₀
03729	Los Angeles County (West Central)--LA City (West Central/Westwood & West Los Angeles) PUMA	SCE 6	34.04%	21.13%	1.44%	0.97%		
03731	Los Angeles County (Central)--West Hollywood & Beverly Hills Cities PUMA	SCE 9	31.02%	19.81%	1.86%			
03747	Los Angeles County (Central)--LA City (Central/West Adams & Baldwin Hills) PUMA	SCE 8	28.13%	17.64%	2.17			
01905	Fresno County (Central)--Fresno City (Southeast) PUMA	PG&E R	27.79%	17.74%				
04701	Merced County (West & South)--Los Banos & Livingston Cities PUMA	PG&E R	25.29%	16				
03738	Los Angeles County (Central)--El Monte & South El Monte Cities PUMA	SCE 9	24.63					
01100	Colusa, Glenn, Tehama & Trinity Counties PUMA	PG&E R						
06515	Riverside County--Palm Desert, La Quinta (West) & Desert Hot Springs Cities PUMA	SCE 15						
01100	Colusa, Glenn, Tehama & Trinity Counties PUMA	PG						
01904	Fresno County (Central)--Fresno City (Southwest) PUMA							
01903	Fresno County (Central)--Fresno City (East Central) PUMA							
03727	Los Angeles County (Central)--LA City (Central/Pacific Palisades) PUMA							
03900	Madera County--Madera City PUMA							
01308	Contra Costa County (Northeast)--Antioch City PUM							
02300	Humboldt County PUMA							
04702	Merced County (Northeast)--Mer							
03900	Madera County--Mader							
01100	Colusa, Glenn							
03728	Los							

Table 10: Percentage Point Change in Electric AR₂₀ and AR₅₀ Values by Climate Zone Subdivided into PUMAs Based on Impact of CARE and CAP for CPUC-Jurisdictional Areas with Twenty Highest Electric AR₂₀ Values⁷⁰

Table 11: Percentage Point Change in Natural Gas AR₂₀ and AR₅₀ Values by Climate Zone Subdivided into PUMAs Based on Impact of CARE and CAP for CPUC-Jurisdictional Areas with Twenty Highest Natural Gas AR₂₀ Values⁷¹

Table 12 shows the impacts of the CARE and CAP discounts on water AR values for the water ratemaking areas with the twenty highest water AR₂₀ results under the base scenario. Similar to electric and natural gas industries, the CAP program is most effective in areas where water AR₂₀ results are highest. In addition, there is a greater benefit for low-income households than median income households due to low-income households spending more of their income after housing costs on essential utility bills.

⁷⁰ For full set of CARE/CAP impacts on AR values, see <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/changes-in-ar-values-carecap-vs-base-and-fera-vs-base.xlsx>

⁷¹ Ibid.

PWSID	Name	Base AR ₂₀	CARE/CAP AR ₂₀	Base AR ₅₀	CARE/CAP AR ₅₀	Change in AR ₂₀	Change in AR ₅₀
CalAm_HILL	CALIFORNIA AMERICAN WATER - HILLVIEW	12.66%	4.34%	2.00%	0.74%	-8.3	-1.3
GSWC_ClearLake	GOLDEN STATE - CLEARLAKE	11.75%	7.72%	2.55%	1.78%	-4.0	-0.8
CWS_Willows	CALIFORNIA WATER SERVICE - WILLOWS	10.24%	6.54%	1.94%	1.33%	-3.7	-0.6
CWS_KernValley	CALIFORNIA WATER SERVICE - KERN VALLEY	9.62%	6.87%	2.77%	2.02%	-2.8	-0.8
CalAm_MON	CALIFORNIA AMERICAN WATER - MONTEREY	8.56%	6.68%	2.76%	2.19%	-1.9	-0.6
CalAm_FRV	CALIFORNIA AMERICAN WATER - FRUITRIDGE	8.47%	6.73%	1.37%	1.11%	-1.7	-0.3
GSWC_LosOsos	GOLDEN STATE - LOS OSOS	8.34%	5.06%	2.05%	1.28%	-3.3	-0.8
LU_Yermo	LIBERTY UTILITIES - YERMO	7.73%	6.10%	2.00%	1.65%	-1.6	-0.4
CWS_LAV_AV	CALIFORNIA WATER SERVICE - ANTELOPE VALLEY	7.55%	4.41%	1.50%	0.92%	-3.1	-0.6
GSWC_Region2	GOLDEN STATE - REGION 2	6.11%	4.33%	1.16%	0.85%	-1.8	-0.3
LU_Park	LIBERTY UTILITIES - PARK	5.89%	4.54%	1.34%	1.07%	-1.3	-0.3
SGVWC_LA	SAN GABRIEL VALLEY - LA	5.68%	4.23%	1.23%	0.96%	-1.4	-0.3
CWS_Stockton	CALIFORNIA WATER SERVICE - STOCKTON	5.27%	3.69%	1.22%	0.89%	-1.6	-0.3
CalAm_SM	CALIFORNIA AMERICAN WATER - SAN MARINO	5.12%	3.89%	1.00%	0.80%	-1.2	-0.2
CalAm_SAN	CALIFORNIA AMERICAN WATER - SAN DIEGO	5.10%	3.92%	1.32%	1.04%	-1.2	-0.3
CWS_EastLA	CALIFORNIA WATER SERVICE - EAST LA	5.09%	3.83%	1.32%	1.00%	-1.3	-0.3
GSWC_BayPoint	GOLDEN STATE - BAY POINT	4.99%	2.97%	1.06%	0.65%	-2.0	-0.4
CalAm_MEAD	CALIFORNIA AMERICAN WATER - MEADOWBROOK	4.64%	3.58%	0.86%	0.68%	-1.1	-0.2
CalAm_BH	CALIFORNIA AMERICAN WATER - BALDWIN HILLS	4.41%	3.35%	0.68%	0.55%	-1.1	-0.1
CWS_Selma	CALIFORNIA WATER SERVICE - SELMA	4.10%	2.78%	1.07%	0.75%	-1.3	-0.3

Table 12: Percentage Point Change in Water AR₂₀ and AR₅₀ Values by Ratemaking Area Based on Impact of CARE and CAP for Water Ratemaking Areas with the Highest Water AR₂₀ Values⁷²

The impact of the CARE and CAP programs for all geographically granular areas across the state can be measured by comparing the detailed AR results in the 2022 AR Calculator for the “Base” and “CARE/CAP” scenarios.⁷³ This information is too detailed to present in this report but can provide valuable insights into where the CAP and CARE programs provide an especially large impact on energy and water affordability to low-income customers.

ii. CARE Enrollment

The AR results presented in this chapter demonstrate the impact of the CARE and CAP programs for customers who are enrolled in them. To provide a point of reference for how many customers are impacted by these programs, this section presents CARE enrollment rate⁷⁴ data from the utilities’ 2022 annual reports on the low-income assistance programs as well as more granular enrollment data that was provided by the electric and natural gas IOUs in response to a data request.^{75,76,77,78}

Table 13 shows a summary for each large IOUs’ service territory of the estimated percentage of eligible customers who were enrolled in CARE by end of year 2022. CARE enrollment was very high for all of the

⁷² *Ibid.* (n.86)

⁷³ 2022 AR Calculator: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/arc_2022_final.xlsm. Note that this is a large file. It is highly recommended that you save this file to your hard drive (right-click and save) and open it from there.

⁷⁴ Enrollment rate refers to the percent of eligible customers enrolled in the program.

⁷⁵ PG&E 2022 ESA, CARE, and FERA Annual Report:

<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M507/K658/507658600.PDF>

⁷⁶ SoCalGas 2022 ESA and CARE Annual Report:

<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M507/K605/507605503.PDF>

⁷⁷ SDG&E 2022 Annual Report Activity on ESA, CARE, and FERA:

<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M507/K820/507820064.PDF>

⁷⁸ SCE 2022 Low Income Annual Report: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M507/K387/507387424.PDF>

large IOUs, partly due to lingering effects of the COVID-19 pandemic, including increased eligibility of households, a suspension of customer removal from the program, and a very aggressive outreach effort.

Utility	Avg. 2022 CARE Enrollment %
PG&E	105%
SCE	91%
SDG&E	123%
SoCalGas	111%

Table 13: Average 2022 CARE Enrollment Percentages by Utility

The IOUs provided CARE enrollment and eligibility estimates at the PUMA level, which allows for a geographically granular assessment of CARE enrollment within each IOU’s service territory. These granular estimates of CARE enrollment differ significantly from the service territory-wide results presented in **Table 13** because they rely on different methodologies for estimation of the number of eligible CARE customers. The IOUs’ annual reports use eligibility estimates from a third party, whereas their more granular estimates of CARE eligibility at the PUMA level are based on their own propensity models. The PUMA-level CARE enrollment presented in this report is not meant to conflict with or take precedence over the numbers presented by the IOUs in their annual reports. Instead, they are presented here to illustrate opportunities to improve CARE enrollment within each IOUs’ service territory.

Table 14 shows the PUMAs within each utility service territory where CARE enrollment was less than 50 percent, based on the IOUs’ estimates of the number of eligible customers within each PUMA. By evaluating the CARE enrollment and eligibility data at this level of detail, it is possible to identify specific areas where more aggressive, pinpointed customer outreach efforts could lead to greater CARE enrollment.

The complete PUMA-level data response from the IOUs is available on the CPUC website.⁷⁹ That data shows that in addition to the areas with relatively low CARE enrollment identified in **Table 14**, there are a number of PUMAs where CARE enrollment is over 100 percent of eligible customers. This indicates that the datasets and models that the IOUs use to estimate CARE eligibility at a geographically granular scale may require refinement. Improvements to their eligibility models could lead to more targeted recruitment efforts.⁸⁰ Furthermore, because CAP eligibility is often determined by CARE enrollment, it could improve water affordability for these customers as well.

⁷⁹ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/care-and-fera-enrollment-data.xlsx>

⁸⁰ D.21-06-015 authorized the IOUs to update their CARE propensity and probability models. The IOUs may update these models without having to request authorization from the CPUC, as long as these updates do not require budget expenditures beyond what is already approved in this decision. When such updates are made, the IOUs shall report the changes in the monthly and annual CARE/FERA compliance reports.

Utility	PUMA	City/County	Estimated Eligible CARE Population	CARE Enrolled	CARE Enrollment %
PG&E	06711	Sacramento County (South)--Galt, Isleton Cities & Delta Region	944	404	42.7%
SCE	03731	Los Angeles County (Central)--West Hollywood & Beverly Hills Cities	8829	1867	21.1%
	03769	Los Angeles County (Southeast)--Long Beach (Central) & Signal Hill Cities	14375	4553	31.7%
	03767	Los Angeles County (South)--LA City (South/San Pedro)	257	127	49.4%
Southwest Gas	06103	Placer County (East/High Country Region)--Auburn & Colfax Cities	1950	456	23.4%
	05700	Nevada & Sierra Counties	1048	348	33.2%
	07104	San Bernardino County (Southwest)--Phelan, Lake Arrowhead & Big Bear City	6564	2700	41.1%
	01700	El Dorado County--El Dorado Hills	5103	2327	45.6%

Table 14: PUMAs with Less than 50% CARE Enrollment, Based on IOU Estimates of CARE-Eligible Customers

b. FERA

i. AR Impact

The impact of the FERA discount on electric AR values at the climate zone level is shown in **Table 15**. As with the CARE analysis, these results present the AR values for representative households at the same income levels within each area with and without the discount. It makes no determination as to whether customers at that income level would necessarily qualify for the program. Similar to the CARE/CAP results that were presented previously, these results are only provided for the large electric IOUs.⁸¹

Overall, the FERA discount has a more modest impact on AR values as compared to CARE and CAP, due to its relatively lower level discount: CARE provides a discount of 30-35 percent on electric bills and a 20 percent discount on natural gas, while FERA only offers an 18 percent discount on electric bills. This table shows a smaller but still significant impact on electric affordability, with the program providing a larger impact for lower-income households. As with the CARE affordability impacts, the drop in AR value is larger in areas where electric AR values are highest in the base scenario, showing that even a modest reduction in EUB can have a significant affordability impact for particularly low-income households.

The impact of the FERA program can be understood at a more granular geographic level by comparing the detailed AR results produced by the 2022 AR Calculator using the “Base” and “FERA” scenarios.⁸²

⁸¹ Per Public Utilities Code § 739.12, only the three large electric IOUs are able to offer the FERA discount. EUBs with the FERA discount applied were obtained by data request.

⁸² 2022 AR Calculator: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/arc_2022_final.xlsx. Note that this is a large file. It is highly recommended that you save this file to your hard drive (right-click and save) and open it from there.

Table 15: Percentage Point Change in Electric AR₂₀ and AR₅₀ Values by Climate Zone Based on Impact of FERA

ii. FERA Enrollment

The large electric IOUs' present FERA enrollment rates in their annual FERA report filings.^{83,84,85} As summarized in **Table 16**, FERA enrollment is significantly lower across all of the IOUs compared to CARE enrollment rates. Because FERA enrollment figures are much lower than CARE, and confidentiality requirements prevent disclosure of information for small groups of customers, the PUMA-level FERA enrollment data submitted by the IOUs was redacted in many PUMAs where there was low FERA enrollment and eligibility. This data, where available, is included at the PUMA level for each of the electric IOUs on the CPUC website.⁸⁶

Utility	Avg. 2022 FERA Enrollment %
PG&E	21%
SCE	12%
SDG&E	28%

Table 16: Average 2022 FERA Enrollment Percentages by Utility

⁸³ PG&E 2022 ESA, CARE, and FERA Annual Report:

<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M507/K658/507658600.PDF>

⁸⁴ SCE 2022 Low Income Annual Report: <https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M507/K387/507387424.PDF>

⁸⁵ SDG&E 2022 Annual Report Activity on ESA, CARE, and FERA:

<https://docs.cpuc.ca.gov/PublishedDocs/Efile/G000/M507/K820/507820064.PDF>

⁸⁶ <https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/care-and-fera-enrollment-data.xlsx>

4. AR Forecasts Based on Cost & Rate Tracker Projections

This chapter presents forecasted values for the electricity AR₂₀ metric based on forecasted cumulative year-end rates derived from cumulative revenue requirement projections embedded in the most recently available Cost and Rate Tracker (CRT) for each IOU,⁸⁷ as modified by Energy Division staff.⁸⁸

As part of the Phase 1 Decision in the Affordability Rulemaking proceeding, the CPUC ordered PG&E, SCE, and SDG&E to each submit a quarterly CRT tool to Energy Division for evaluating the inputs of the affordability metrics developed as part of the rulemaking and for other ongoing support of the CPUC's work.⁸⁹ The CRTs may be used to produce bundled⁹⁰ residential EUBs as inputs to the AR affordability metric based on current rates in effect⁹¹ and forecasted rates resulting from cumulative revenue requirement projections.⁹²

To show overall rate trends, each IOU's CRT is used to produce a short- to medium-term cumulative bundled residential rate forecast for the current year and three additional years. Electric bundled residential average rate forecasts for PG&E, SCE, and SDG&E for the years 2023 – 2026⁹³ were presented in the CPUC's *2023 Senate Bill 695 Report: Report to the Governor and Legislature on Actions to Limit Utility Cost and Rate Increases Pursuant to Public Utilities Code Section 913.1* (2023 SB 695 Report).⁹⁴

Table 17 shows the 2023 SB 695 Report rates forecast.

	Current	Year-End	
	Q1-2023	2023	2024
PG&E Nominal Rate	\$ 0.305	\$	
SCE Nominal Rate			
SDG&E Nominal Rate			

Table 17: PG&E, SCE, and SDG&E Forecasted Bundled Residential Average Rates (nominal \$/kWh)

These cumulative forecasted rates (light-blue shaded area of **Table 17**) were used to calculate electric EUBs⁹⁵ for climate zones in each of the three IOU service territories, which were input in the 2022 AR Calculator so that electric AR₂₀ values could be forecast for the years 2023 – 2026. The purple-shaded

⁸⁷ Most recently available CRT is that which was current at the time the 2023 SB 695 Report was issued.

⁸⁸ The cumulative total of forecasted revenue for each year reflects revenues that are: (1) recently implemented, (2) approved but not yet implemented, (3) not yet approved ("pending") and (4) not yet filed.

⁸⁹ See [D.20-07-032](#), Ordering Paragraph (OP) 1, p. 99. SoCalGas was later ordered by ruling to submit a quarterly CRT.

⁹⁰ Bundled, used here with respect to customer rates and bills, refers to customers who get all of their services - generation, transmission, and distribution services - from the IOUs.

⁹¹ Current rates in effect are intrinsically a cumulative representation of all authorized revenue requirements currently implemented in rates.

⁹² A rate forecast takes the indication of what rate impacts may be from the CRT and adds user-defined assumptions. For example, Energy Division staff may modify the CRT results to reflect estimates for cost recovery applications not yet filed.

⁹³ The forecasted simple volumetric rates include assumptions related to those forecasts and are subject to material change as assumptions change. Further, forecasts are based on forward-looking estimates that are not historical facts.

⁹⁴ See [2023 SB 695 Report](#). General drivers of expected rate growth can be found in the report.

⁹⁵ The cumulative forecasted rate EUBs are available as a scenario in the 2022 AR Calculator: : https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/arc_2022_final.xlsm. Note that this is a large file. It is highly recommended that you save this file to your hard drive (right-click and save) and open it from there.

area of **Table 17** shows the current rates in effect⁹⁶ used to produce the forecasted rates.⁹⁷ The EUBs/ESBs for all other essential services are based on inflation-based projections⁹⁸ using the 2022 historical EUBs/ESBs as a starting point. All EUBs/ESBs are combined with income and housing cost projections embedded in the 2022 AR Calculator to produce the AR₂₀ projections shown in Figure 20 to Figure 22.

PG&E's AR₂₀ forecast in Figure 20 shows that affordability of electric service is expected to worsen during the forecast period of 2023 – 2026 relative to the 2022 baseline. This indicates that the current outlook for rate increases will lead to EUB growth that will outpace the expected growth in household incomes. This trend of increasing unaffordability is expected to be particularly acute in PG&E climate zone R, a hotter region that includes Merced and Fresno. The weighted average electric AR₂₀ value for this climate zone is expected to incrementally grow from 15.7 percent to 21.4 percent, a 5.7 percentage point increase, between 2022 and 2026. Much of that increase is expected to happen in 2023 when the AR₂₀ value will increase by 3 percentage points (from 15.7 percent to 18.7 percent). While PG&E climate zone R is expected to have the worst AR values, the other PG&E climate zones are also expected to have increases in AR₂₀ during the forecast period due to the large, forecasted increases in PG&E's electric rates. Across PG&E's climate zones, AR₂₀ value increases are expected to range from 1.4 percentage points (climate zone X) to 5.7 percentage points (climate zone R) by 2026 compared to the 2022 baseline. Since there is an increase in AR₂₀ values across all climate zones, household electric bills across all climate zones will become less affordable if household incomes track the assumed inflation rate of 3.0 percent.

⁹⁶ 3/1/23 for PG&E and SCE and 1/1/23 for SDG&E. These were the current rates in effect for each IOU at the time the 2023 SB 596 Report was issued.

⁹⁷ Current rates in effect are not input into the AR Calculator, they are only used for generating CRT rates forecasts from the CRT. Weighted-average 2022 rates are input into the AR Calculator as the base year rates.

⁹⁸ For 2023 through 2026, 3.0 percent is the predicted average annual inflation rate used in the 2022 AR Calculator. This value is derived from the California Department of Finance's projections of average US Consumer Price Index for urban consumers, or CPI-U.

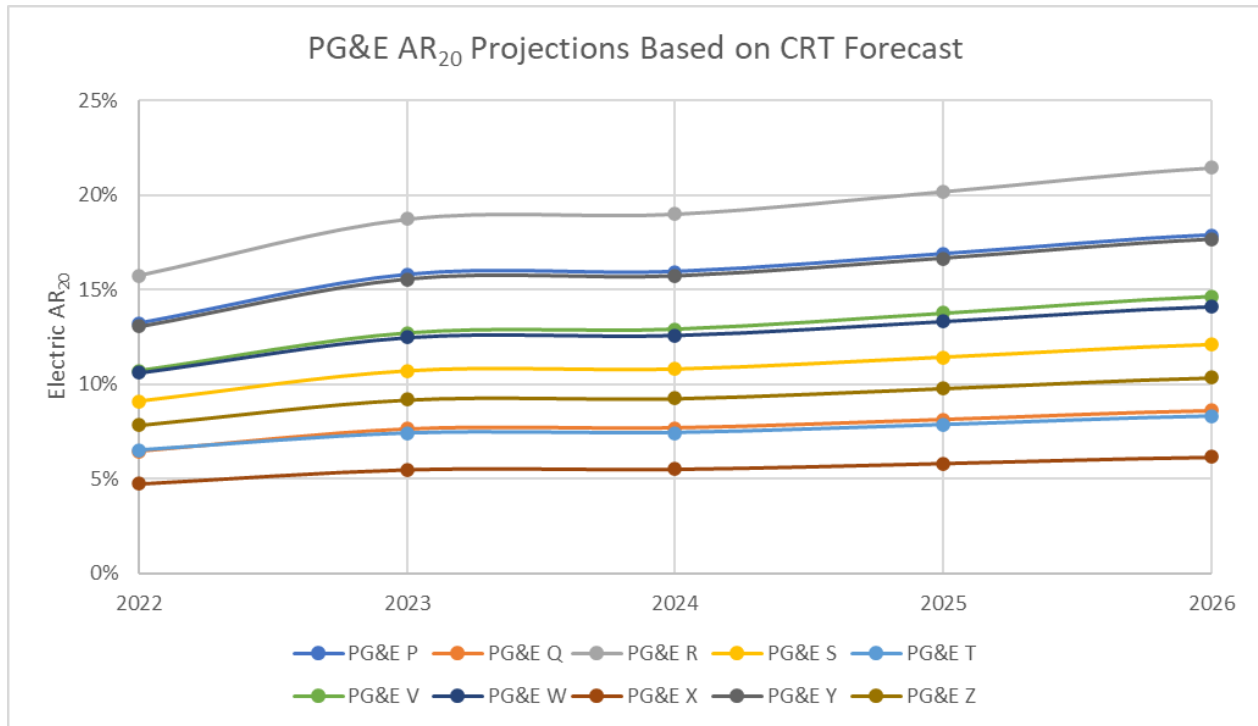


Figure 20: PG&E Electric AR₂₀ Forecast Based on 2023 CRT Projections by Climate Zone

The SCE AR₂₀ forecast shown in Figure 21 shows a large uptick in AR₂₀ in 2023 relative to the 2022 baseline. SCE's residential rates are currently forecasted to decrease slightly in 2024 before resuming a steady increase during the remainder of the forecast period. Since SCE's rates are expected to drop slightly in 2024, affordability is expected to improve a bit as income growth provides some relief before AR₂₀ values resume their steady upward march. In SCE climate zone 15, which is one of the hottest and least affordable regions that lies along the California border with Nevada and Arizona, AR₂₀ is expected to increase by 5.8 percentage points (from 17.6 percent to 23.4 percent) between 2022 and 2026. Furthermore, across all of SCE's climate zones, AR₂₀ values have the potential to increase significantly, ranging from 2.8 percentage points (climate zone 16) to 6.6 percentage points (climate zone 5) over the forecast period compared to the 2022 baseline.

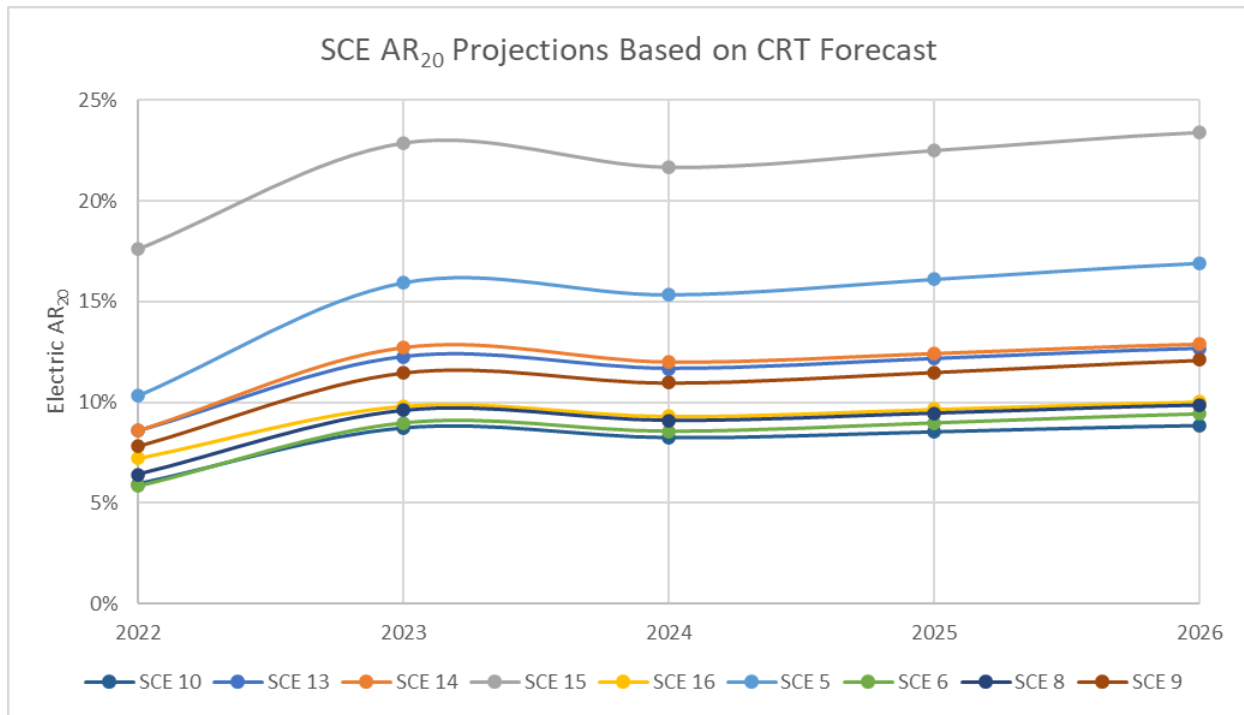


Figure 21: SCE Electric AR₂₀ Forecast Based on 2023 CRT Projections by Climate Zone

The SDG&E AR₂₀ forecast presented in Figure 22 shows a steady increase in AR₂₀ values over the forecast period. Across the four climate zones, AR₂₀ value increases are expected to range from 3.3 percentage points (Coastal climate zone) to 4.6 percentage points (Mountain climate zone) by 2026 compared to the 2022 baseline. For instance, in SDG&E's Mountain climate zone, AR₂₀ is expected to grow from a 2022 value of 11.0 percent to a 2026 value of 15.6 percent. Even though SDG&E's volumetric rates are much higher than the rates of the other two IOUs, the more temperate weather (and thus, lower AC-driven electricity usage) and more affluent service territory have kept their EUBs more affordable, as measured by the AR₂₀ metric. However, with an expected rapid growth in rates and bills over the forecast period, SDG&E customers will see a decline in electricity affordability over the next few years. As with the other IOUs, this implies that household electric bills across all climate zones will become less affordable if household incomes track the predicted inflation rate.

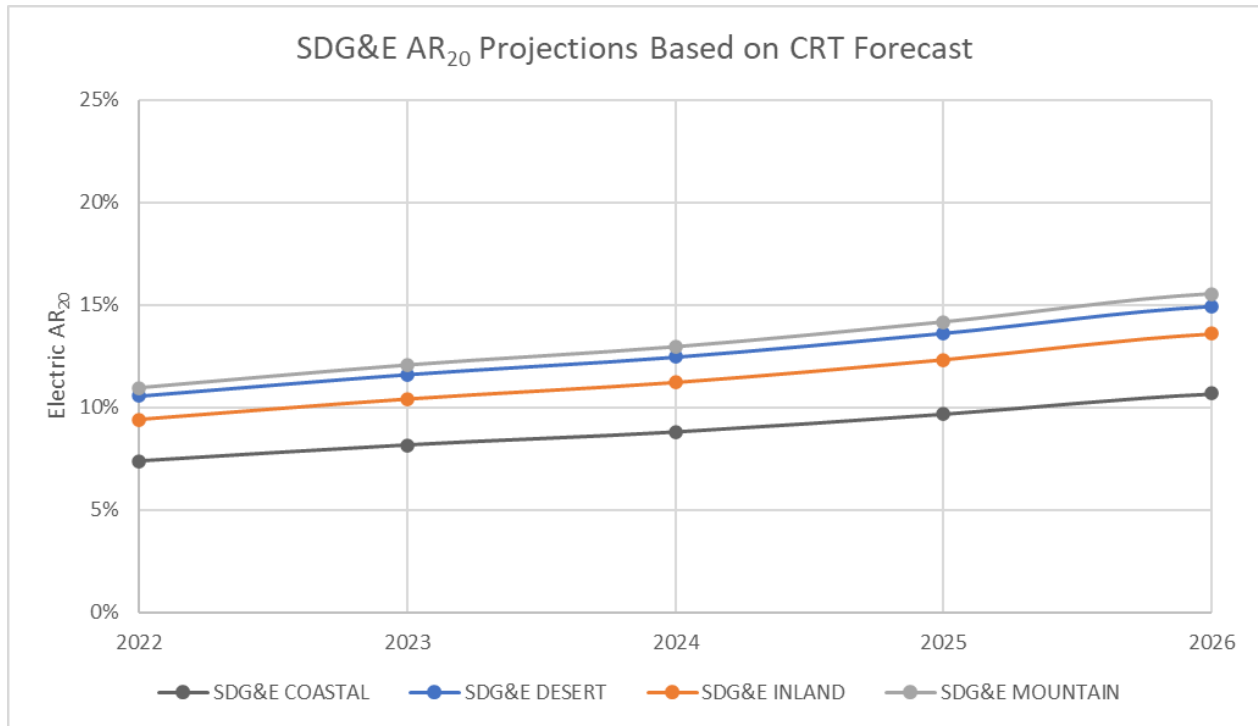


Figure 22: SDG&E Electric AR₂₀ Forecast Based on 2023 CRT Projections by Climate Zone

For a more detailed AR outlook based on these EUB projections, the 2022 AR Calculator’s “2023 CRT Forecast” scenario provides a detailed projection of AR₂₀ and AR₅₀ values for each of the climate zones discussed in this report, as well as a more geographically granular set of results for these climate zones broken down into constituent PUMAs.⁹⁹

⁹⁹ 2022 AR Calculator: https://www.cpuc.ca.gov/-/media/cpuc-website/divisions/energy-division/documents/affordability-proceeding/2021-2022/arc_2022_final.xlsm. Note that this is a large file. It is highly recommended that you save this file to your hard drive (right-click and save) and open it from there.

5. Ongoing Assessment of Affordability Metrics Implementation

The Phase 2 Decision adopted a two-year assessment period on the implementation of the affordability metrics. This chapter offers: (1) a summary of the implementation of the metrics in ongoing, current proceedings (“open proceedings”); (2) a review since the 2020 Annual Affordability Report of final Decisions from past proceedings for which affordability metrics were filed or otherwise used (“closed proceedings”) and (3) staff recommendations regarding affordability metrics presentation in applications.

a. Use of Affordability Metrics in Open Proceedings

The Phase 2 Decision directed energy and water utilities to include the metrics, based on rates that are currently effective as well as those that are proposed, for all applications¹⁰⁰ requesting a revenue requirement increase of more than 1 percent (“reporting threshold”). Table 18 shows energy and water utility open proceedings¹⁰¹ for which affordability metrics were reported in compliance with the Phase 2 Decision or for which the Assigned Commissioner or Administrative Law Judge for a proceeding identified relevant issues with respect to the affordability metrics.¹⁰²

Utility	Type	Proceeding Number	Proceeding Name	Party Comments
PG&E	Energy	A.21-06-021	2023 GRC Phase I	<ul style="list-style-type: none"> AR and HM affordability metrics reporting ordered in the AC Scoping Memo and Ruling filed October 1, 2021 (proceeding initiated before Phase 2 Decision) Electric metric <u>change</u> over GRC cycle by climate zone for AR₂₀ ranges from 0.3% to 2.3%, for HM from 0.6 hours to 1.7 hours, and for AR₂₀ in Areas of Affordability Concern (Portions of San Francisco, Alameda, Butte, Fresno, Kern, San Joaquin Counties) from 1.2% to 6.0% Gas metric <u>change</u> over GRC cycle by climate zone ranges for AR₂₀ ranges from 0.6% to 2.7%, for HM from 1.0 hours to 2.0 hours, and for AR₂₀ in Areas of Affordability Concern from 2.4% to 9.5% TURN found that the 2023 GRC request will reduce overall¹⁰³ affordability for both Non-CARE and CARE customers relative to current affordability TURN asserted that if fully approved, PG&E’s request in areas of San Francisco and Fresno Counties areas with the lowest levels of electric and gas affordability will result in low-income customers paying over 40% percent of disposable income as defined by the affordability metrics for electricity and gas, even with the CARE discount
PG&E	Energy	A.23-05-012	2024 ERRRA Forecast	<ul style="list-style-type: none"> As filed, the application does not meet the reporting threshold, however, PG&E opted to report the affordability metrics as the revenue requirements in the application may

¹⁰⁰ Includes Tier 3 advice letters for water utilities.

¹⁰¹ Includes proceedings opened since the 2020 Annual Affordability Report was issued and not closed at the time of 2022 Annual Affordability Report preparation.

¹⁰² Proceedings reported through May 31, 2023. AR₂₀ and HM impact values reported for Non-CARE and CARE customers.

¹⁰³ TURN does not define “overall,” however, a review of PG&E’s Supplemental Testimony Affordability Metrics Report dated February 23, 2022, shows a total increase in all AR and HM GRC cycle data over 2021 base year data.

				be subsequently modified by PG&E's Fall Update and may exceed the reporting threshold at that time
SCE	Energy	A.23-05-010	2025 GRC Phase I	<ul style="list-style-type: none"> Preliminary review indicates that the 2025 GRC request will reduce affordability for both Non-CARE and CARE customers Electric metric <u>change</u> over GRC cycle by climate zone for AR₂₀ ranges from 0.1% to 1.2% and for HM from 0.7 hours to 1.9 hours Current and proposed AR₂₀ values for Non-CARE and CARE customers are below 15% used to report AACs
SDG&E and SoCalGas (the Sempra Utilities)	Energy	A.22-05-016 A.22-05-015 (Consolidated)	2024 GRC Phase 1	<ul style="list-style-type: none"> AR and HM affordability metrics reporting ordered in the AC Scoping Memo and Ruling filed October 3, 2022 (proceeding initiated before Phase 2 Decision) SDG&E electric metric <u>change</u> over GRC cycle by climate zone for AR₂₀ ranges from 0.6% to 2.0%, for HM is 0.3 hours to 0.7 hours (Non-City of San Diego), and for AR₂₀ in Areas of Affordability Concern (Portions of San Diego and Imperial Counties) ranges from 2.2% to 7.4% SDG&E gas metric <u>change</u> over GRC cycle for AR₂₀ is 1.1% to 1.5%, for HM is 0.7 to 0.8 hours, and for AR₂₀ in Areas of Affordability Concern (Portions of San Diego County) ranges from 4.9% to 5.3% SoCalGas metric <u>change</u> over GRC cycle by climate zone for AR₂₀ ranges from 0.7% to 2.2%, for HM from 0.4 hours to 0.8 hours, and for AR₂₀ in Areas of Affordability Concern (Portions of Los Angeles, Orange, Fresno, and Kern Counties) from 2.3% to 72.2% TURN asserted that current levels of the Sempra Utilities' energy rates and bills are not affordable for many low-income customers, even with low-income assistance programs TURN found that the Sempra Utilities' own metrics indicate that the 2024 GRC requests will reduce overall affordability for combined electric and gas customers UCAN contended that the electric affordability metrics presentation lacks meaningful analysis to justify SDG&E's proposed rate increases
SDG&E	Energy	A.22-12-008	Recovery of Undercollection Recorded in the Tree Trimming Balancing Account	<ul style="list-style-type: none"> Preliminary review indicates that although essential usage bills increase, AR₂₀ metrics decrease for all climate zones except Inland, with SDG&E noting that the embedded calculator assumptions, such as inflation for income, housing and other utility bills, were unchanged by SDG&E
SDG&E	Energy	A.23-01-008	2024 GRC Phase 2	<ul style="list-style-type: none"> Preliminary review indicates essential usage bills will decrease, driving decreases in the affordability metrics
SCE, SDG&E,	Energy	A.22-10-001 A.22-10-002	2021 – 2025 EPIC	<ul style="list-style-type: none"> Funding was authorized before the Phase 2 Decision,¹⁰⁴ however, the ALJ Ruling Requesting Comments dated December 22, 2022, seeks further party comments

¹⁰⁴ Per D.21-11-02, total funding is \$185 million per year multiplied by 5 years, or \$925 million, split between the three large electric IOUs.

and PG&E		A.22-10-003	Investment Plans (EPIC 4)	<p>regarding identifying the pros and cons of including the affordability metrics in the EPIC 4 Investment Plan Proceeding</p> <ul style="list-style-type: none"> • SCE indicated in comments that it would be more beneficial to apply affordability metrics to specific Individual Projects that support the identified Research Topics within each utility's EPIC 4 Investment Plan, and that it is open to a workshop to discuss specific metrics and the general topic of affordability with all interested stakeholders • In its comments, PG&E references EPIC 4 project economic and affordability benefits without committing to the affordability metrics • SDG&E's comments were not supportive of considering the affordability metrics and included specific rejection of the possibility of using the third affordability metric, the CalEnviroScreen Disadvantaged Communities Vulnerability Index
Liberty (Cal-Peco Electric)	Energy	A.22-10-022	Cost Recovery of Various Memorandum Accounts	<ul style="list-style-type: none"> • Current AR₂₀, AR₅₀ and HM are not calculated per OP 5 of D.22-08-023 and changes thereto are therefore not correctly calculated per OP 6 of D.22-08-023¹⁰⁵ • Current essential usage bills and average usage bills underlying the affordability metrics are not presented per OP5 of D.22-08-023 and changes thereto are therefore not correctly calculated per OP 6 of D.22-08-023¹⁰⁶
San Gabriel Valley Water	Water	A.22-01-003	2023 GRC	<ul style="list-style-type: none"> • Proceeding initiated before the Phase 2 Decision, however, the utility opted to report AR and HM affordability metrics as part of adding additional information regarding water affordability to the settlement agreement filed December 16, 2022, as ordered in the ACR Scoping Memo and Ruling filed March 16, 2023 • Proposed AR₂₀ values for CARW and non-CARW customers are below 10% used to report AACs
Suburban	Water	A.23-01-001	2024 GRC	<ul style="list-style-type: none"> • Proposed AR values were made available with the application, however current AR values (and changes thereto) were not presented nor were HM metrics • Proposed AR values for CARW and non-CARW customers are below 10% used to report AACs
Liberty	Water	A.23-05-004	2024 – 2026 Cost of Capital	<ul style="list-style-type: none"> • Proposed AR values were submitted with application, however current AR values (and changes thereto) were not presented as required by OP 8 of D.22-08-023 • Proposed AR values for CARW and non-CARW customers are below 10% used to report AACs • HM metric change is 0.2 hours

¹⁰⁵ Liberty (Cal-Peco Electric) has presented to Energy Division updated metrics that demonstrate an understanding of compliance with D.22-08-023, however, these updated metrics have not been communicated by Liberty to proceeding stakeholders.

¹⁰⁶ Liberty (Cal-Peco Electric) has presented to Energy Division essential usage bills and average usage bills data to demonstrate an understanding of compliance with D.22-08-23, however, this data has not been communicated by Liberty to proceeding stakeholders.

Table 18: Energy and Water Utilities Open Proceedings Using Affordability Metrics

b. Use of Affordability Metrics in Closed Proceedings

There is one closed proceeding Decision since the 2020 Annual Affordability Report was issued for which affordability metrics were reported in compliance with the Phase 2 Decision and in which substantial reference to the affordability metrics was made: D.23-06-004 in PG&E's 2022 WMCE Interim Rate Relief Application proceeding (2022 WMCE Decision).¹⁰⁷ The 2022 WMCE Decision authorizes PG&E to recover a maximum of \$1.104 billion in interim electric rates, pending a final decision on what permanent cost increase, if any, is just and reasonable.

The 2022 WMCE Decision includes additional analysis to what was presented in PG&E's affordability metrics by framing AR₂₀ and AR₅₀ increases in the context of the underlying EUBs, giving a better sense of what the AR data represents. For example, the 2022 WMCE Decision states:¹⁰⁸

As shown in Exhibit E of A.22-12-009, 11.8% is the AR₂₀ metric for Non-CARE electric customers in Territory P at present rates. As shown, the Non-CARE electric customers in Territory P pay monthly electric essential use bills at present rates of \$113.44. When calculated as a percentage of these customers' amount of income-after-housing, the bill of \$113.44 represents 11.8% of income-after-housing. With the proposed increase, these same customers would pay monthly electric essential use bills of \$119.16, a bill increase of \$5.73, or 5.0%. \$119.16 represents 12.4% of these customers' income-after-housing, an increase to AR₂₀ of 0.6%.

The 2022 WMCE Decision also makes a direct tie-in of the increase in EUBs with the changes in the HM metric, providing an easily understandable narrative¹⁰⁹ for the data in the HM tables:¹¹⁰

For households earning minimum wage anywhere PG&E serves, the electric essential use bill increase equates to an additional 12 – 24 minutes of work per month.

The 2022 WMCE Decision provides a table with a snapshot of important affordability impact data, i.e. the change in the affordability metrics, included throughout the various AR and HM tables provided by PG&E in its testimony but not highlighted by PG&E.¹¹¹ **The data provides an extra lens for the most disadvantaged residential customers: those at the lower end (20th percentile) of the income distribution, those earning minimum wage, and those in areas facing grave economic challenges.**¹¹² The data is reproduced in Table 19 for customers enrolled in CARE and Non-CARE customers.¹¹³

¹⁰⁷ There are two other energy closed proceedings for which affordability metrics were filed pursuant to the Phase 2 Decision: (1) D.22-12-012 in SCE's 2022 ERRR Trigger Application (A.22-09-017) does not reference the affordability metrics; (2) D.23-04-012 in SCE's 2023 ERRR Trigger Application (A.23-01-020) acknowledges "the forecast rate increase was also reflected in the affordability metrics SCE provided in compliance with D.22-08-023" but provides no further comments. There are no water closed proceedings for which affordability metrics were filed pursuant to the Phase 2 Decision.

¹⁰⁸ See [D.23-06-004](#), page 8, footnote 22.

¹⁰⁹ The understandability of this approach is illustrated in an article published with respect to PG&E's 2022 WMCE application. See [California Energy Markets Issue 1751](#).

¹¹⁰ See [D.23-06-004](#), page 8.

¹¹¹ See Table 2 of D.23-06-004.

¹¹² *Ibid*, page 5.

¹¹³ *Id.*, page 21.

PG&E Proposal	Incremental Change in Affordability Ratio for 20 th Percentile Households (AR ₂₀)		Incremental Change in Time for Households Earning Minimum Wage (HM)		Incremental Change in AR ₂₀ in Areas of Affordability Concern (Portions of Butte, Fresno, Kern, San Joaquin Counties)	
	CARE	Non-CARE	CARE	Non-CARE	CARE	Non-CARE
Lowest - Highest Affordability Impact by Climate Zone	0.1% – 0.4%	0.2% – 0.6%	0.2 – 0.3 hours or 12 -18 minutes	0.2 – 0.4 hours or 12 – 24 minutes	0.5% - 0.9%	0.8% - 1.3%

Table 19: Most Disadvantaged Customers Affordability Impacts Over GRC Cycle

The AR₂₀ impacts of PG&E’s proposal for its most disadvantaged customers who are enrolled in CARE are in the range of 0.1 percent to 0.4 percent, and for those not enrolled in CARE, in the range of 0.2 percent to 0.6 percent.¹¹⁴ This means that the proposed revenue request would take an additional bite out of these customers’ household budgets at anywhere from 0.1 percent to 0.6 percent, depending on whether the customer is enrolled in CARE. The HM impact is as previously noted: For households earning minimum wage, the electric essential use bill increase equates to an additional 12 – 24 minutes of work per month.

c. Affordability Metrics Presentation Recommendations

Energy Division staff recommends the following guidelines for utilities when introducing the affordability metrics and changes thereto in applications. The presentation of these metrics in applications is required by Ordering Paragraphs 5 and 6 of the Phase 2 Decision:

1. Utilities should include additional summary data and narrative to what is essentially a lot of data presented in many tables in affordability metrics filings.¹¹⁵ **At a minimum, staff recommends in future filings that the utilities use the format in Table 19 to highlight the results for the utility’s most disadvantaged customers, along with narrative such as that immediately under Table 19 to give even more context to the numbers in the table.**
2. The change in AR₂₀ and AR₅₀ should be the simple incremental change, i.e. subtraction function of current AR from proposed AR. A percent change calculation that further divides the simple incremental change by the starting value (e.g. current AR₂₀) may add unnecessary analysis to what may already be a difficult concept to grasp: what exactly does the AR₂₀ or AR₅₀ tell us?

¹¹⁴ Additional analysis at the climate zone subdivided by PUMA level (AAC) shows this household budgetary effect to range from 0.5 percent to 1.3 percent.

¹¹⁵ This varies among IOUs, with most IOUs providing background and explanation of the metrics, but little discussion of what the numbers in the AR and HM tables mean, especially in terms of how the request affects customers’ share-of-wallet (AR) or share-of-time spent at a minimum wage job (HM) calculations. In one case, PG&E 2022 WMCE, there was no additional information included beyond the tables themselves.

Since the AR measures relative affordability, simple directional movement is the most straightforward presentation of this metric.¹¹⁶

3. The version of the Affordability Ratio Calculator (ARC) used should be indicated.¹¹⁷ The excel file of the ARC used need not be included in the filing, but should be made available as a workpaper if requested. The excel file of the ARC should not be the sole means of presenting current and proposed EUBs and ARs as the changes thereto must be presented, for which a table presentation in the filing is recommended.
4. Utilities should refrain from presenting AR and HM metrics at the average for all climate zones or service territory level. Aggregating up to such a non-granular level tends to obscure the geographic basis of the metrics.¹¹⁸

6. Timeline for Future Annual Affordability Reports

The scope and structure of the annual affordability report has been refined over the course of the first few issuances (the 2019, 2020, and the 2021/2022 Reports). With the format of the report and the accompanying outputs now established, a timeline is presented here for future iterations of the analysis. This proposed timeline is based on the availability of the datasets needed for calculation of the affordability metrics, as well as the anticipated time needed for CPUC staff to perform the analysis. This timeline will also give stakeholders an opportunity to provide feedback on the accuracy of the data used to perform the analysis.

The specific timeline presented here reflects the planned 2023 Annual Affordability Report, but the intent is to repeat this same process with an annual cadence for future iterations of the report.

- Q4 2023 – Service territory shapefiles and 2022 Census Bureau ACS PUMS data becomes available. CPUC staff begins analysis.
- Q1 2024 – Draft 2023 Affordability Ratio Calculator (ARC) release, including essential usage/service bill data, shapefiles, affordability metric calculations, and supporting data. Stakeholders asked to provide feedback on any identified data errors or methodological issues.
- 30 days after Draft ARC release – Informal feedback on data and methodological issues due.
- Q2/Q3 2024 – Final 2023 ARC and 2023 Annual Affordability Report release.
- 60 days after 2023 Report release – Formal feedback on 2023 Report due.

¹¹⁶ The Sempra Utilities' 2024 GRC gas AR metrics changes used a percent change calculation rather than incremental change; (Note: electric AR metric changes were clearly presented using incremental change).

¹¹⁷ PG&E 2022 WMCE and 2024 ERRa Forecast applications (A.22-12-009 and A.23-05-012, respectively) omitted the ARC version used.

¹¹⁸ In Table 18, all large IOUs presented the affordability metrics at the average for all climate zones, in addition to providing the metrics at the climate zone level required by the Phase 2 Decision.